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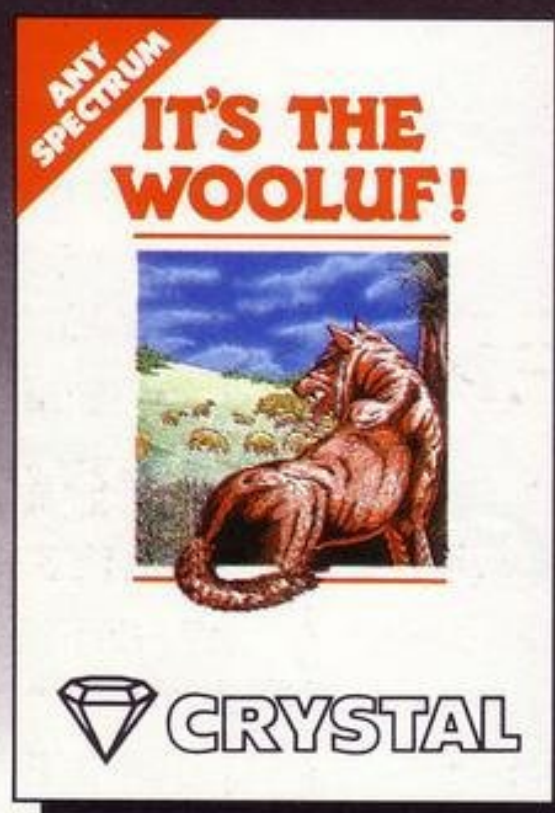
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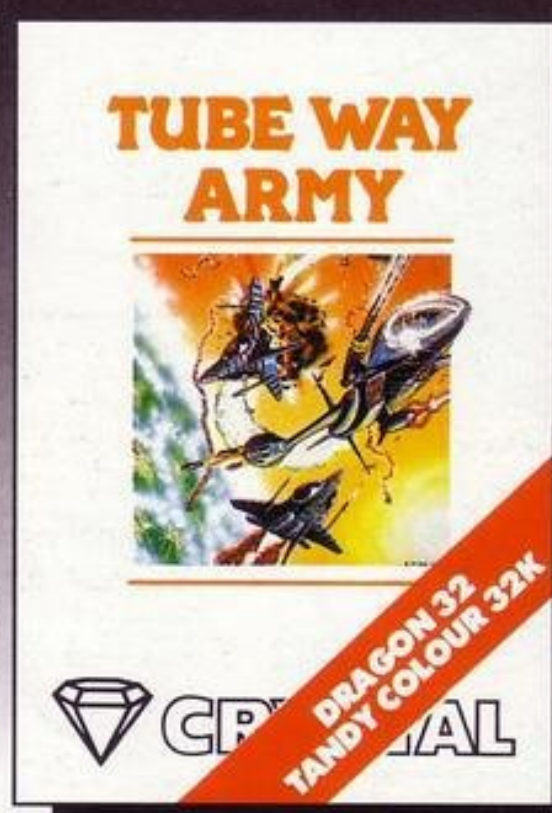
PROGRAM OF THE MONTH  
**SPECTRAL PIANO  
REBOUND  
GOTCHA  
SHOOT OUT  
HAUNTED**



# TWO **NEW** RELEASES FROM CRYSTAL **IT'S THE WOOLUF!** **TUBE WAY ARMY**



Written by: Martin Buller

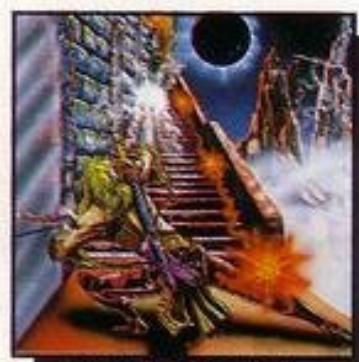


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THINGS**



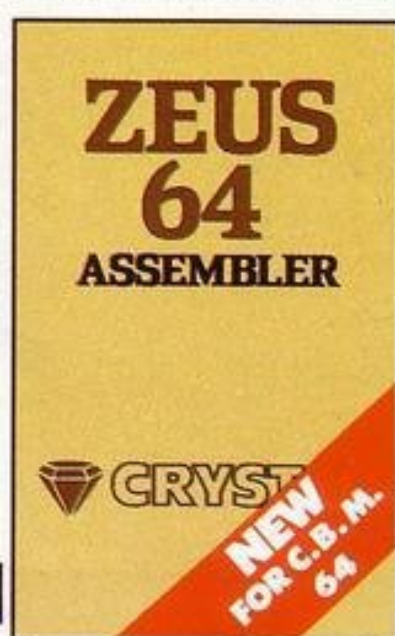
**HALLS OF THE THINGS**

Written by: Neil Mottershead, Simon Brattel and Martin Horsley



**INVASION OF THE BODY SNATCHAS**

Written by: Simon Brattel and Neil Mottershead



Written by: Graham Stafford



**ROMMELS REVENGE**

Written by: Martin Horsley



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Written by: Graham Stafford

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The Spectrum programs in this magazine were written on model one and model two Spectrums. If your Spectrum responds to the command PRINT IN 16602 with the number 191, then it is a model three Spectrum. In this case all programs will RUN unaltered on your machine unless they contain the keyword IN. IN is followed by a five digit number, and then by the numbers 255, 254 or 253. Replace 255 with 191, 254 with 190 and 253 with 189 to RUN the program on a model three machine. Instructions for graphics characters are printed in lower-case letters in our listings. They are enclosed by brackets and separated by a colon to distinguish them and the brackets and colons should not be entered. Inverse characters are represented by the letter "i" and graphics characters by "g". Thus an inverse W would be represented by "iw", a graphics W by "gw", and an inverse graphics W by "igw". Spaces are represented by "sp" and inverse spaces by "isp". Whenever any character is to be used more than once, the number of times it is to be used is shown before it, together with a multiplication sign. Thus "6\*isp" means six inverse spaces and "(g4\*4\*4g3)" would be entered as a graphic four, followed by an inverse four repeated four times, followed by a graphics three. Where whole words are to be written in inverse letters they appear in the listings as lower-case letters. Letters to be entered in graphics mode on the Spectrum are underlined.



# THE SPIRAL TOWER

```

2 GO SUB 8000
10 BORDER 0: PAPER 0: INK 6: C
LS
20 LET sc=0
25 LET cuP=0: LET nd=1: LET a$
="1": LET d1=0: LET x=18: LET y=
5: LET g=4: LET d=0: LET t=0: LE
T p=0: LET n=17: LET b=7: LET b1
=13: LET b2=19
35 LET w$="(9a)3*3p)24*9a)3*3p
)9a)"
36 LET x$="(32*9a)"
40 FOR f=0 TO 21: PRINT "(9a)"
TAB 31: "(9a)": NEXT f
41 PRINT AT 0,0: x$
42 FOR f=4 TO 19 STEP 5: PRINT
AT f,0: w$: NEXT f
43 PRINT AT 20,0: "(9a)3*9e)25*
9a)3*9e)9a)": AT 21,0: x$
44 PRINT AT 3,27: INK 4: "(9c)"
45 FOR f=14 TO 18: PRINT AT f,
26: INK 5: "(9b)": NEXT f
46 FOR f=4 TO 8: PRINT AT f,26
: INK 5: "(9b)": NEXT f
47 FOR f=9 TO 13: PRINT AT f,5
: INK 5: "(9b)": NEXT f
48 PRINT AT 18,27: INK 7: "(9d)"
: AT 4,3: INK 7: "(9m)"
50 FOR f=4 TO 18: PRINT AT f,2
: INK 5: "(9b)": NEXT f
51 FOR f=15 TO 18: PRINT AT f,
8: INK 7: "(99)": NEXT f
52 PRINT AT n,8: INK 7: "(9h)"
53 PRINT AT 18,16: "(9a)"
54 PRINT AT 8,15: "(9a)" : INK
2: "(9k)": INK 6: "(9k)"
55 PRINT AT 3,9: INK 3: "(9f)"
56 PRINT AT 13,b1-1: INK 4: "(9
1)": AT 13,b1-1: INK 4: "(9l)": AT
13,b2-1: INK 4: "(9l)"
100 PRINT AT x,y: " "
105 IF INKEY$="0" THEN LET d1=

```

```

1: LET a$="(9i)"
110 IF INKEY$="5" THEN LET d1=
-1: LET a$="(9j)"
112 LET y=y+d1
115 PRINT AT x,y: INK 5: a$
117 IF x=3 AND y=4 THEN LET y=
y-1: GO TO 5000
120 IF y>27 OR y<4 THEN GO TO
7000
130 IF x=18 AND y=26 AND INKEY$
="0" THEN GO SUB 6000
140 IF x=8 AND y=26 AND INKEY$=
"0" THEN GO SUB 6000
150 IF x=13 AND y=5 AND INKEY$=
"0" THEN GO SUB 6000
155 IF INKEY$="0" THEN PRINT A
T x,y: " ": LET x=x-1: LET y=y+d1
: PRINT AT x,y: INK 7: a$: BEEP .
05,10: PRINT AT x,y: " ": LET y=y
+d1: LET x=x+1
160 LET n=n+nd: PRINT AT n,8: I
NK 7: "(9h)"
162 BEEP .003,10
165 IF n=15 THEN LET nd=1
170 IF n=18 THEN LET nd=-1
180 IF x=n AND y=8 THEN GO TO
7010
190 LET b=b+1: LET b1=b1+1: LET
b2=b2+1
200 PRINT AT 13,b-1: INK 4: "(9
1)": AT 13,b1-1: INK 4: "(9l)": AT
13,b2-1: INK 4: "(9l)"
202 IF b=24 THEN PRINT AT 13,2
4: " ": LET b=5
203 IF b1=24 THEN PRINT AT 13,
24: " ": LET b1=5
204 IF b2=24 THEN PRINT AT 13,
24: " ": LET b2=5
210 IF (x=13 AND y=b) OR (x=13
AND y=b1) OR (x=13 AND y=b2) TH
EN GO TO 7020
220 IF x=18 AND y=27 AND d=0 TH

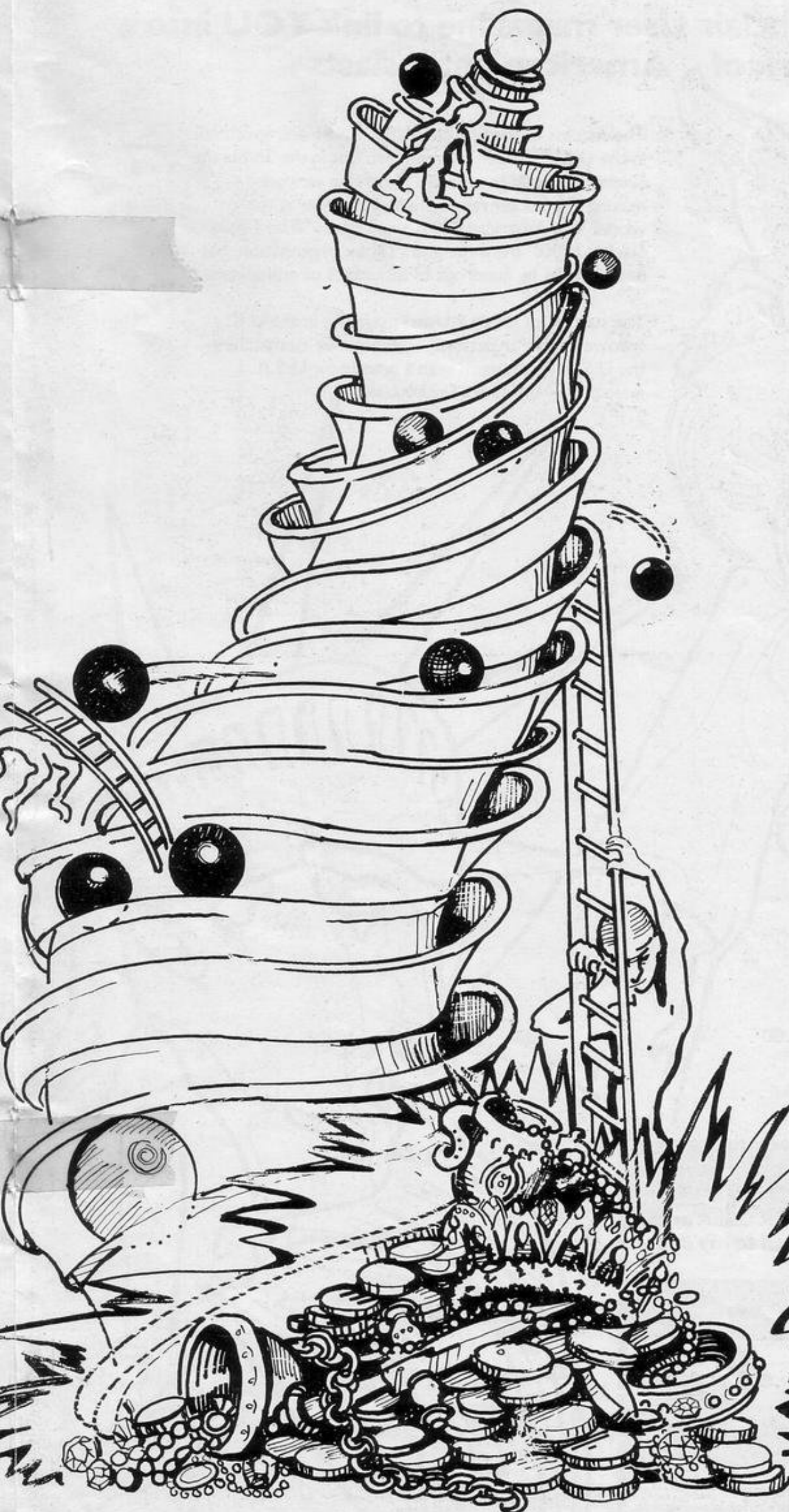
```

```

EN LET d=1: LET sc=sc+10: BEEP
.5,10
230 IF (x=18 AND y=16) OR (x=8
AND y=15) OR (x=8 AND y=19) THEN
GO TO 7030
240 IF x=8 AND y=17 AND cuP=0 T
HEN LET sc=sc+30: LET cuP=1: BE
EP .5,10
250 IF x=3 AND y=27 AND t=0 THE
N LET t=1: LET sc=sc+60: BEEP .
5,10
260 IF x=3 AND y=g+1 AND d=1 TH
EN LET d=0: LET sc=sc+50: BEEP
.5,10: LET g=24: PRINT AT x,y: "
": LET y=8
270 IF x=3 AND y=g+1 AND d=0 TH
EN GO TO 7040
290 PRINT AT 3,g: " "
300 LET g=g+(y>9)-(y<9)
310 PRINT AT 3,g: INK 3: "(9f)"
980 PRINT AT 0,13: sc
990 IF nd=1 THEN PRINT AT n,8:
INK 7: "(99)"
991 IF nd=-1 THEN PRINT AT n,8
: " "
998 BEEP .003,10
999 GO TO 100
5000 PRINT AT x,y-2: " ": LET y=y
-1: LET x=x+1: FOR f=x TO 18: PR
INT AT f,y: INK 5: a$: BEEP .5,10
: PRINT AT f,y: INK 5: "b": NEXT
f: LET sc=sc+40
5010 CLS: GO TO 21
6000 FOR f=1 TO 5: PRINT AT x,y:
a$: BEEP .05,10: PRINT AT x,y: I
NK 5: "b": LET x=x-1: NEXT f: BEE
P .5,10: RETURN
7000 FOR f=x TO 20: PRINT AT f,y
: a$: BEEP .01,10: PRINT AT f,y: "
": NEXT f: BEEP .5,10: CLS: PR
INT AT 10,10: FLASH 1: "SPLAT!": A
T 21,10: "SCORE:": sc: PAUSE 0: PA

```





**R**ACE ALONG the corridors of the ancient stronghold, dodge the cannonballs and scale the ladders on your way to the treasure trove. You will encounter new hazards on each floor of **The Spiral Tower** and only your dexterity will save you in this month's program of the month.

The Spiral Tower was written by Graeme Johnston of Ascot, Berkshire for the 16K Spectrum. He was given his Spectrum for his 12th birthday in March and this is one of the first programs he has written.

```

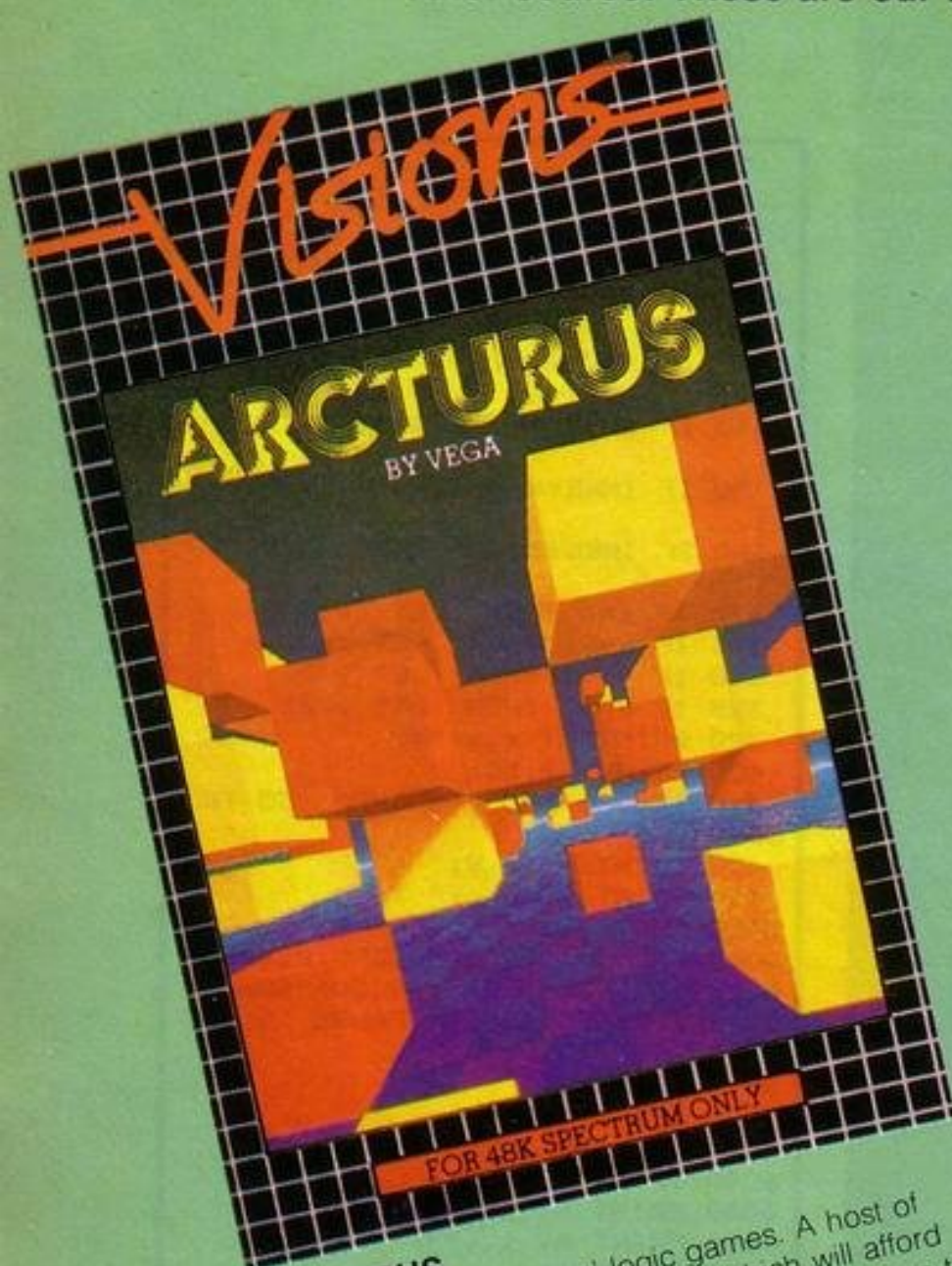
USE 0: RUN
7010 BEEP .5,10: CLS: PRINT AT
10,10: FLASH 1: "HUNG!" AT 21,10:
"SCORE:";sc: PAUSE 0: PAUSE 0: R
UN
7020 BEEP .5,10: CLS: PRINT AT
10,10: FLASH 1: "SQUASHED!" AT 21
,10: "SCORE:";sc: PAUSE 0: PAUSE
0: RUN
7030 BEEP .5,10: CLS: PRINT AT
10,10: FLASH 1: "RAN INTO A WALL!"
AT 21,10: "SCORE:";sc: PAUSE 0:
PAUSE 0: RUN
7040 BEEP .5,10: CLS: PRINT AT
10,10: FLASH 1: "EATEN BY A GHOUL!"
AT 21,10: "SCORE:";sc: PAUSE 0:
PAUSE 0: RUN
8000 FOR f=USR "a" TO USR "m"+7:
READ a: POKE f,a: NEXT f
8005 PRINT AT 0,0: AT 2,6: AT 5,
0: "DODGE THE NOOSE (9h), JUMP T
HE WALL (9j), GRAB THE DAGGER
(9d), SCALE THE LADDER, DODGE T
HE BOMBS (9l), UP THE LADDER
, JUMP THE WALLS AND GRAB THE CU
P (9k), SCALE THE LADDER, GRAB
THE TREASURE (9c), KILL THE
GHOUL (9f), AND ESCAPE DOWN THE
LADDER. "" "CONTROLS: 5-LEFT, 8-RI
GHT, 0-JUMP"" " PRESS ANY
KEY"
8006 PAUSE 0
8010 RETURN
9000 DATA 255,129,129,129,129,12
9,129,255
9001 DATA 66,66,126,66,66,66,126
,66
9002 DATA 255,129,189,189,153,15
3,129,255
9003 DATA 16,16,16,16,16,124,16,
16
9004 DATA 0,0,0,0,0,85,85,255
9005 DATA 24,36,60,36,66,126,153
,129
9006 DATA 16,56,16,56,16,56,16,5
6
9007 DATA 16,56,16,56,16,40,68,5
6
9008 DATA 24,24,16,60,40,120,136
,4
9009 DATA 24,24,8,60,12,30,17,32
9010 DATA 126,126,126,126,60,24,
24,126
9011 DATA 60,126,255,255,255,255
,126,60
9012 DATA 255,0,0,0,0,0,0,0

```



# PLAY THE

Here's a sure-fire way of making certain 1984 is packed full of fun for you and your friends. We've searched for brilliant new program sources throughout the U.K. and North America to find an exciting collection of new games—and business programs—many of which cannot be bought by mail order from any other source! These are our latest exclusive offerings.

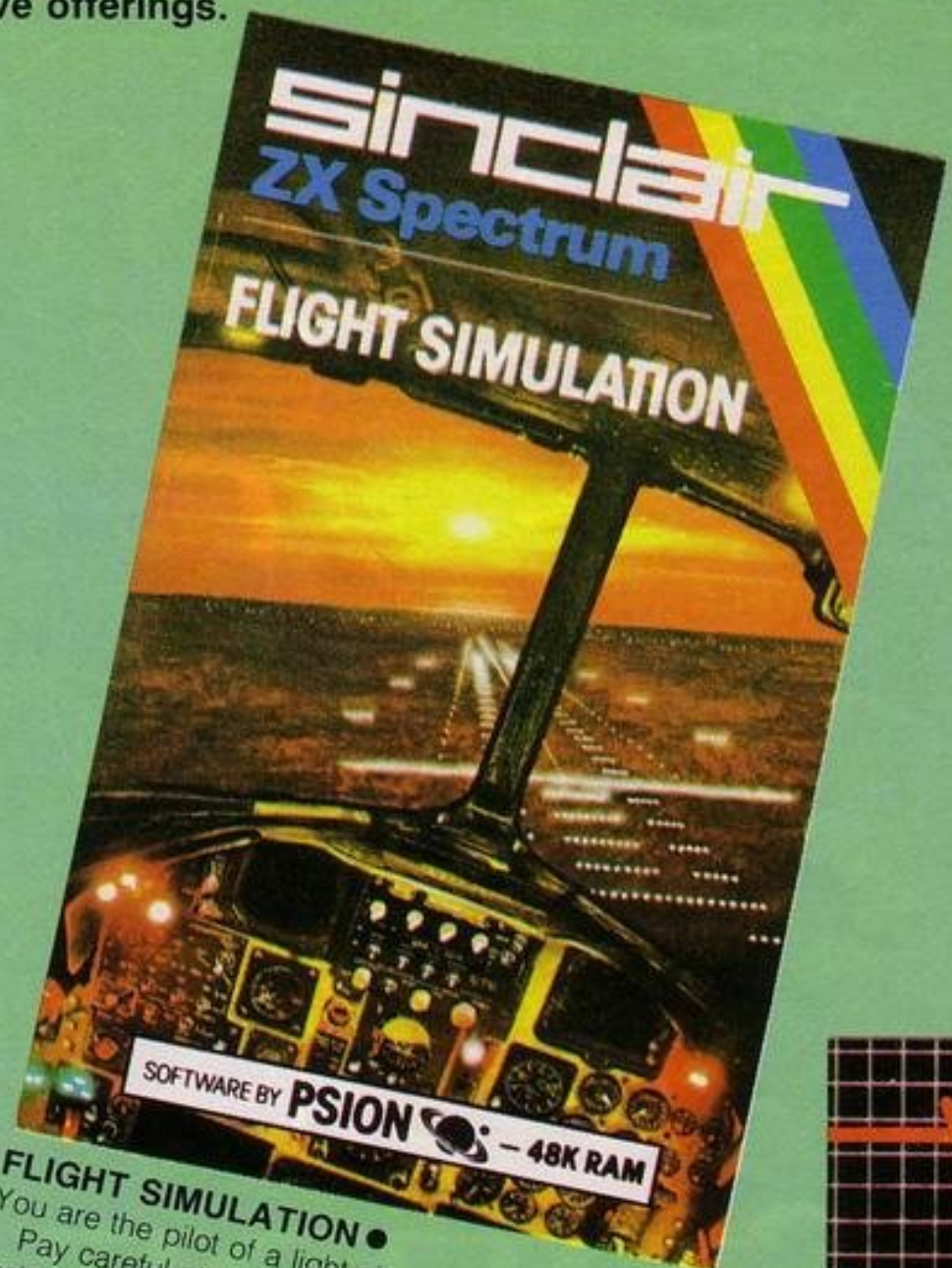


## ARCTURUS

This is the first of Visions' logic games. A host of features are offered to the player which will afford many hours of entertainment. Not an easy game to put down and at the higher levels seemingly impossible to beat. For the Spectrum 48K.

Cassette price: £6.95

Ref. No: 2-55



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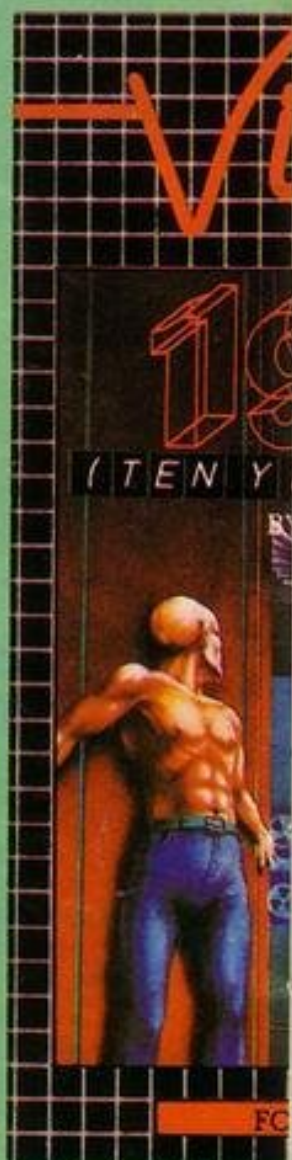
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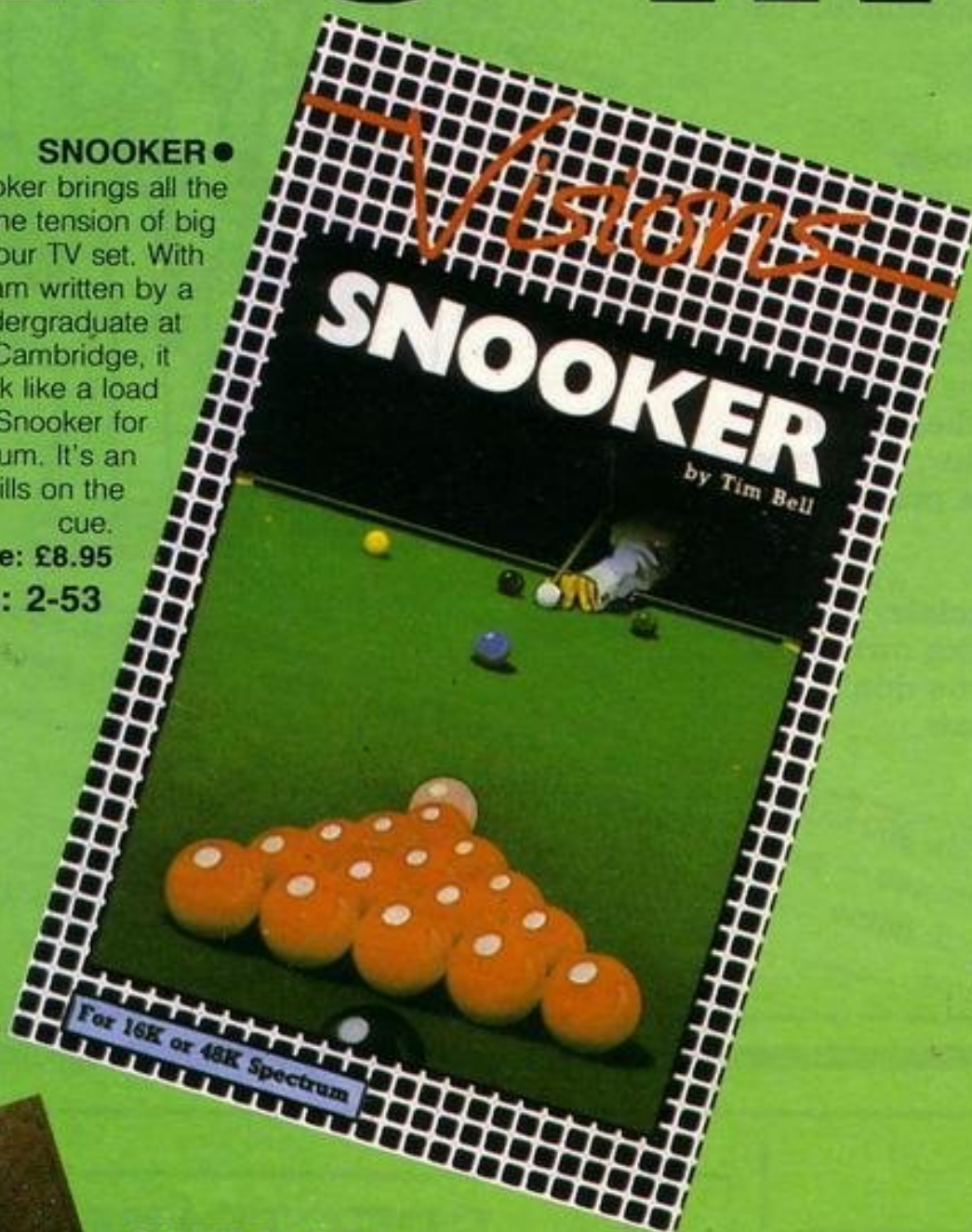
# NEW GAMES IN 1984

## SNOOKER●

Visions Snooker brings all the excitement and all the tension of big time tournaments to your TV set. With an advanced program written by a 19 year old undergraduate at Queens College Cambridge, it makes Pot Black look like a load of old balls. Visions Snooker for the 16K ZX Spectrum. It's an exciting test of your skills on the cue.

Cassette price: £8.95

Ref. No: 2-53



## SHEER PANIC●

Mining for Magnetic Quartz is a hazardous business. You have to ensure that there is plenty of oxygen to breathe, fight off the local monsters with only a shovel and counter interference with your consciousness.

ZX Spectrum 16K or 48K.

Cassette price: £5.95.

Ref. No: 2-51



And here's a further selection of the latest games, the best value software for your Spectrum

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### 2-13 Sentinel

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### 2-26 Derby Day

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Complete confidence. If you are not satisfied with the quality of your purchase return it to us within 7 days and we will provide a replacement.





# PING PONG

PING PONG allows two players to play on the 16K or 48K Spectrum. As the body of the program is written in machine code, super fast shoots the ball across the screen and

```
10 CLEAR 31743: GO SUB 1000
20 BORDER 4: PAPER 0: INK 7: C
LS
30 LET yy=40: LET xs=3: LET ys
=4: LET P0="PING-PONG": GO SUB 2
000
40 PRINT AT 15,7:"Claus Jensen
1983"
50 LET yy=160: LET xs=1: LET y
s=2: LET P0="Press any key to co
ntinue": GO SUB 2000
60 PAUSE 0: CLS
70 PRINT AT 2,0:" This is a ga
me for 2 Players. Each Player
controls a bat, which can b
e moved up and down in an attem
pt to hit the ball."
80 PRINT AT 7,0:" The player a
t the left side controls hi
s bat with the keys Q and A. Th
e Player at the right side
controls his bat with the ke
ys P and ENTER."
90 PRINT AT 13,0:" When a ball
is lost, a new one is automat
ically supplied. The game is ov
er, when one of the Players ha
s won 10 balls."
100 PRINT AT 20,9:"PRESS ANY KE
Y"
110 PAUSE 0
120 CLS: PRINT AT 4,2:"Select
speed of the game": PLOT 16,134
```

```
: DRAW 196,0
130 PRINT AT 8,7:"1 - Slow"
140 PRINT AT 9,7:"2 - Medium sp
eed"
150 PRINT AT 10,7:"3 - Fast"
160 PRINT AT 11,7:"4 - Very fas
t"
170 PRINT AT 12,7:"5 - Super fa
st"
180 PRINT AT 17,2:"Press one di
git (1-5)"
190 PAUSE 0: LET s0=INKEY$: IF
s0<"1" OR s0>"5" THEN GO TO 190
200 LET ls=0: LET rs=0
210 PAPER 2: INK 2: CLS
220 PRINT AT 0,0:"ahhhhhhhhhhh
ffffffffffffffffffffib": FOR n=1 TO
20: PRINT AT n,0:"adcccccccccccc
cccccccccccccccccccb": NEXT n: PR
INT AT 21,0:"aJ9999999999999999
999999999999999kb"
230 INK 6: POKE 23296,10: POKE
23297,1: POKE 23298,10: POKE 232
99,1: POKE 23300,10: POKE 23301,
1: POKE 23302,10: POKE 23303,1:
POKE 23304,0: POKE 23305,1
240 GO TO 230+20*VAL s0
250 LET n=USR 31744: FOR a=1 TO
10: NEXT a: IF n=0 THEN GO TO 2
50
260 GO TO 340
270 LET n=USR 31744: FOR a=1 TO
7: NEXT a: IF n=0 THEN GO TO 27
```

```
0
280 GO TO 340
290 LET n=USR 31744: FOR a=1 TO
3: NEXT a: IF n=0 THEN GO TO 29
0
300 GO TO 340
310 LET n=USR 31744: FOR a=1 TO
1: NEXT a: IF n=0 THEN GO TO 31
0
320 GO TO 340
330 LET n=USR 31744: IF n=0 THE
N GO TO 330
340 LET ls=ls+(CHR$ n="L"): LET
rs=rs+(CHR$ n="R")
350 PAPER 0: INK 7: CLS
360 FOR n=20 TO 0 STEP -2: BEEP
.05,n: NEXT n
370 LET yy=40: LET xs=4: LET ys
=4: LET P0=STR$ ls+" "+STR$ rs:
GO SUB 2000
380 IF ls<10 AND rs<10 THEN PAU
SE 50: GO TO 210
390 LET yy=100: LET xs=1: LET y
s=2: LET P0="WE'VE GOT A WINNER
": FLASH 1: GO SUB 2000: FLASH
0
400 LET yy=152: LET xs=1: LET y
s=2: LET P0="Do you want a new g
ame? (y/n)": GO SUB 2000
410 PAUSE 0
420 IF INKEY$="y" OR INKEY$="Y"
THEN GO TO 120
430 IF INKEY$="n" OR INKEY$="N"
```



# POONC

should be played by expert players only. When the game is RUN, wait until the title page is displayed before pressing any key. Written by Claus Jensen of Vaerloese, Denmark.



```

THEN STOP
440 GO TO 410
1000 PRINT "Initializin@....."
1010 RESTORE : LET a=31744: LET
c=0
1020 READ h@: LET n=1
1030 LET h1=CODE h@ (n)-48: IF h1
>9 THEN LET h1=h1-7
1040 LET h2=CODE h@ (n+1)-48: IF
h2>9 THEN LET h2=h2-7
1050 POKE a,16*h1+h2: LET c=c+PE
EK a: LET a=a+1: LET n=n+2
1060 IF a=31744+469 THEN PRINT "
Section #1 loaded": LET a=32256
1070 IF a=32256+277 THEN PRINT "
Section #2 loaded": LET a=USR "a
"
1080 IF a=USR "a"+88 THEN PRINT
"Section #3 loaded": GO TO 1110
1090 IF n>LEN h@ THEN GO TO 1020
1100 GO TO 1030
1110 IF c=79688 THEN PRINT "Init
ialization ok": PAUSE 100: RETUR
N
1120 PRINT FLASH 1;"WARNING:"; F
LASH 0;" There is an error in
one or more of the DATA state-
ments. Do not try to execute the
Program, since this may cause a
System Crash.": STOP
1130 DATA "3A005BFE14280A01FEFDE
D40CB4020013CFE01280A01FEFBED40C
B4020013D32005B3A025BFE14280A01F

```

```

EBFED40CB4020013CFE01280A01FEDFE
D40CB4020013D32025B3A045B21085B8
632045B3A055B21095B8632055BDD210
05B3A015B21005B8BE28"
1140 DATA "47474FCB38CB38CB38CB2
1CB21CB21CB21CB21DD09DDCB096DDC
B0096DDCB2096DD21005B3A005B474FC
B38CB38CB38CB21CB21CB21CB21D
D09DDCB00D6DDCB00D6DDCB20D632015
BDD211F5B3A035B21025B8BE2047474FC
B38CB38CB38CB21CB21"
1150 DATA "CB21CB21CB21DD09DDCB0
096DDCB0096DDCB2096DD211F5B3A025
B474FCB38CB38CB38CB21CB21CB21CB2
1CB21DD09DDCB00D6DDCB00D6DDCB20D
632035B21005B3A065B474FCB38CB38C
B38CB21CB21CB21CB21CB21093E00473
A075B4F09CB9621005B"
1160 DATA "3A045B474FCB38CB38CB3
8CB21CB21CB21CB21CB21093E00473A0
55B4F09CB063A045B32065B3A055B320
75B3A055BFE002004015200C9FE1F200
4014C00C9FE01200521005B1807FE1E2
04621025B3A045B965FCB7F2802ED44F
E002017FE012013FE02"
1170 DATA "202C7B21005B86FE01280
6FEFF2802181D3A005B88BFE00280ACB7
F28043EFF18023E0132005B3A095BED4
432095B3A045BFE002804FE1520083A0
05BED4432005B010000C9"
1180 DATA "210F5B7E2322005B6F3CC
82600292929ED4B365C093E00832045B3
A005B32095B3A0A5B32005B3E0932055

```

```

B7E2322025B0732065B3A055B3D20323
A045B3D20183A0E5B473A0C5B4F3A0A5
B810520FC320A5B2A005B03037E32045
B3A0D5B473A095B8032"
1190 DATA "095B2A025B03207E32055
B3A0C5B473A095B32075B3A0D5B4FC5C
DA47EC13A075B3C32075B0D20F13A005
B3C32085B0520DD3A065B0C3307E80402
010000402013A0E5CEEFF473A0D5CA04
73A085B06F86F3A075BFE00D0F1F1FE
61F67CB1CCB1DCB1CCB"
1200 DATA "1DCB1CCB1D3E5B84673A0
E5CA6B0773A075B47E607F64067781F1
F1FE618B467781717E6E06F3A085B471
F1F1FE61FB56FEB219C7E78E6074F060
009461A21065B0C462003B012C92FB02
F12C9"
1210 DATA "3F3F3F3F3F3F3F3F3F3F3F
CFCFCFCFCFC3C7EFFFFFFF7E3C3C7E7
F7F7F7F7E3C3C7E7E7E7E7E7E7E3C007E7
FFFFFFF7E3C3C7E7FFFFFFF7E00007E7
F7F7F7F7E3C007E7E7E7E7E7E7E3C3C7E7
F7F7F7F7E003C7E7E7E7E7E7E7E00"
2000 LET xx=(256-8*x@*LEN P@)/2
2010 POKE 23306,xx: POKE 23307,y
y: POKE 23308,x@: POKE 23309,y@:
POKE 23310,8
2020 LET w=LEN P@: FOR n=1 TO w:
POKE 23310+n,CODE P@ (n): NEXT n
POKE 23311+w,255
2030 LET w=USR 32256: RETURN

```



```

13 REM
15 LET G=0
16 LET S=0
20 LET L=16
22 LET C=15
30 LET A=6
32 LET B=15
37 CLS
40 PRINT AT 2,0;"(2*isp)monste
r(2*isp)"
50 PRINT AT 4,2;"YOU ARE INSID
E A DRAGONS LAIR. IT WILL CHASE
YOU THROUGH THE LAIR BUT IT WIL
L DROP ITS TREASURE.PICK UP
ITS TREASURE(.)IF YOU MOVE IN
TO THE BLOCKED EXIT(e) IT WILL
NOT SENSE YOU."
60 PRINT AT 10,17;"7")TAB 7;"U
SE KEYS:5+8")TAB 17;"6"
70 PAUSE 40000
80 PRINT AT 0,0;"TREASURE=
HIGH=";G
90 PRINT "(31*ga)"
100 PRINT "(9h:14*isp:9h:14*isp
:9h)"
110 PRINT "(9h:isp:6*9h:isp:5*9
h:isp:9h:isp:5*9h:isp:6*9h:isp:9
h)"
120 PRINT "(9h:14*isp:9h:14*isp
:9h)"
130 PRINT "(9h:isp:9h:isp:9h:is
p:9h:isp:9h:isp:9h:isp:9h:isp:3*
9h:isp:9h:isp:9h:isp:9h:isp:9h:i
sp:9h:isp:9h:isp:9h)"
140 PRINT "(9h:isp:9h:isp:9h:is
p:9h:isp:9h:isp:9h:isp:9h:isp:3*
isp:isp:9h:isp:9h:isp:9h:isp:9h:
isp:9h:isp:9h:isp:9h)"
150 PRINT "(9h:isp:9h:isp:9h:is
p:9h:isp:9h:isp:9h:isp:9h:isp:3*
isp:isp:9h:isp:9h:isp:9h:isp:9h:
isp:9h:isp:9h:isp:9h)"
160 PRINT "(9h:isp:9h:isp:9h:is
p:9h:isp:9h:isp:9h:isp:9h:isp:3*

```

```

isp:isp:9h:isp:9h:isp:9h:isp:9h:
isp:9h:isp:9h:isp:9h)"
170 PRINT "(9h:9*isp:9h:3*isp:9
h:isp:9h:3*isp:9h:9*isp:9h)"
180 PRINT "(9h:isp:7*9h:isp:9h:
9*isp:9h:isp:7*9h:isp:9h)"
190 PRINT "(9h:9*isp:9h:isp:7*9
h:isp:9h:9*isp:9h)"
200 PRINT "(9h:isp:3*9h:isp:3*9
h:isp:9h:2*isp:5*9h:2*isp:9h:isp
:3*9h:isp:3*9h:isp:9h)"
210 PRINT "(9h:13*isp:9h:ie:9h:
13*isp:9h)"
220 PRINT "(9h:isp:5*9h:5*isp:9
h:isp:9h:isp:9h:isp:9h:5*isp:5*9
h:isp:9h)"
230 PRINT "(9h:isp:3*9h:3*isp:3
*9h:isp:9h:5*isp:9h:isp:3*9h:3*i
sp:3*9h:isp:9h)"
240 PRINT "(9h:29*isp:9h)"
250 PRINT "(9h:isp:3*9h:3*isp:3
*9h:isp:9h:5*isp:9h:isp:3*9h:3*i
sp:3*9h:isp:9h)"
260 PRINT "(9h:13*isp:3*9h:13*i
sp:9h)"
270 PRINT "(9h:isp:3*9h:3*isp:3
*9h:isp:9h:isp:3*9h:isp:9h:isp:3
*9h:3*isp:3*9h:isp:9h)"
280 PRINT "(9h:13*isp:3*9h:13*i
sp:9h)"
290 PRINT "(31*ga)"
300 REM MOVE MAN
310 LET L1=L
320 LET C1=C
340 LET L=L+(INKEY$="6")-(INKEY
$="7")
350 LET C=C+(INKEY$="8")-(INKEY
$="5")
355 PRINT AT L,C)
360 LET Q=PEEK (PEEK 16398+256*
PEEK 16399)
370 IF Q<>0 THEN GOTO 390
375 LET C=C1
380 LET L=L1

```



**Y**OU ARE trapped in the deadly maze which is the **Werewolf Lair** and the werewolf is on your trail. Avoid him for as long as possible and try to collect all the treasure he drops. If you hide in the doorway marked "E" the werewolf will not be able to sense you.

Written for the 16K ZX-81 by Neil Stevens of Shoreham-by-Sea, Sussex.





```

390 IF Q=11 THEN GOTO 9000
400 IF Q=151 THEN LET S=S+1
410 PRINT AT L1,C1;"(1sP)";AT L
,C;"(1o)"
500 REM MOVE MONSTER
510 LET A1=A
520 LET B1=B
530 LET A=A+(A<L)-(A>L)
540 PRINT AT A,B;
550 LET Q=PEEK (PEEK 16398+256*
PEEK 16399)
560 IF Q=180 THEN GOTO 9000
570 IF A<>A1 AND Q<>8 THEN GOTO
680
580 LET A=A1
590 LET B=B+(B<C)-(B>C)
600 PRINT AT A,B;
610 LET Q=PEEK (PEEK 16398+256*
PEEK 16399)
620 IF Q=180 THEN GOTO 9000
630 IF Q<>8 THEN GOTO 680
640 LET B=B1
680 PRINT AT A1,B1;"(1*)";AT A,
B;"""
690 IF S/5=INT (S/5) THEN PRINT
AT 0,10;S
700 IF L<>13 OR C<>15 THEN GOTO
300
710 IF INKEY#<>" " THEN GOTO 300
720 GOTO 700
9000 PRINT AT A1,B1;"(1*)"
9010 FOR F=1 TO 18
9020 PRINT AT L,C;"(9s)"
9030 PRINT AT L,C;"(9d)"
9040 NEXT F
9050 PRINT AT 21,8;"(99:9f:1sP)9
ot yer(1sP:9f:99)"
9060 IF S>G THEN LET G=S
9080 GOTO 16
9900 SAVE "MONSTER"
9910 REM "BY NEIL STEVENS"
9920 RUN

```



# FILE

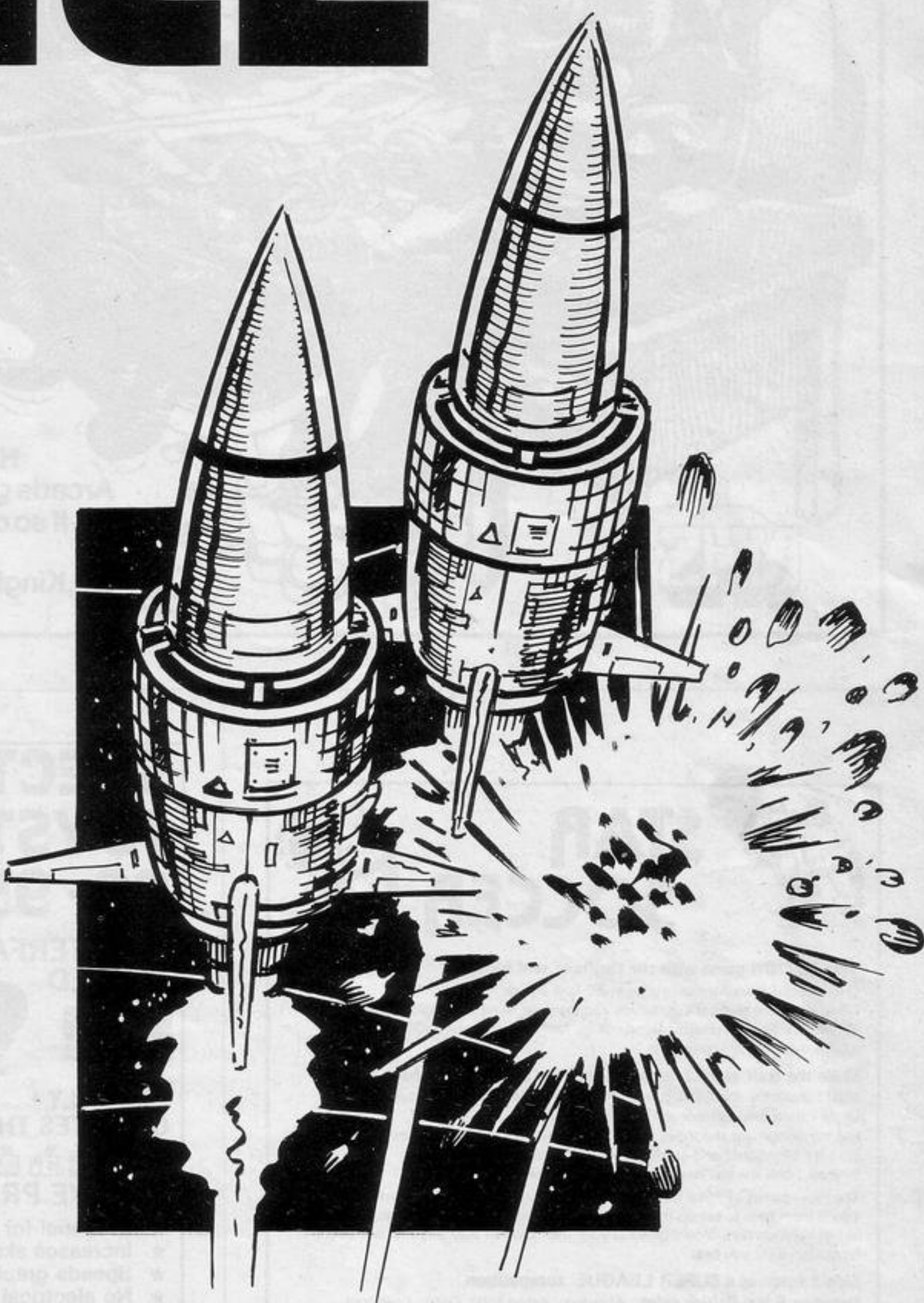
**F**LITE is an addictive dodge 'em game. You must avoid the deadly heat-seeking missiles heading for you and at the same time you must try and hit an enemy target to gain points.

**Flite** was written by Peter Davies of Streatham, London for the 16K Spectrum.

```

10 FOR n=0 TO 15: READ a: POKE
USR "a"+n,a: NEXT n
20 DATA 0,62,85,127,85,127,85,
62,0,62,127,127,127,127,127,62
25 BORDER 1: PAPER 6: CLS
30 PRINT INK 9;"          DODGE
ER""""Dodge the "; INK 5;"(9a)
"; INK 9;"'s and the "; INK 4;"^
"; INK 0;"'s""""Hit the "; INK
2;"(9b)"; INK 0;"'s to score poi
nts""""Control Keys      UP.....
...~1~""""          DOWN.
....~2~"
40 LET hs=0: LET mx=INT (RND*2
0)+6: LET my=20
44 PRINT AT 21,0; INK 0;" PRE
SS ANY KEY TO START": PAUSE 1e3
45 CLS : LET s=0: LET l=3
50 FOR n=1 TO 100
55 LET x=1+INT (RND*31): LET y
=1+INT (RND*20)
60 IF SCREEN$(y,x)="" THEN G
O TO 55
70 PRINT AT y,x; INK 2;"(9a)":
NEXT n
80 FOR n=1 TO 20
85 LET x=1+INT (RND*31): LET y
=1+INT (RND*20)
90 IF SCREEN$(y,x)="" THEN G
O TO 85
100 PRINT AT y,x; INK 5;"(9a)":
NEXT n
110 PRINT AT 21,0;"SCORE ";s;AT
21,12;"LIVES >>>";AT 21,23;"HI
";hs
115 PRINT AT 21,18+l;" "
120 LET x=0: LET y=0
130 IF SCREEN$(y,x)="" THEN G
O TO 200
150 PRINT AT y,x;">"
155 GO SUB 400
160 IF INKEY$="z" THEN LET y=y
+(y<20): LET z=1: GO TO 190
170 IF INKEY$="1" THEN LET y=y
-(y>0): LET z=0: GO TO 190
180 LET x=x+1: IF x=32 THEN LE
T x=1: PRINT AT y,31;" ": GO TO
130
185 LET z=2
190 PRINT AT y+(z=0)-(z=1),x-(z
=2);" ": GO TO 130
200 IF ATTR (y,x)=48 THEN GO T
O 150
205 IF ATTR (y,x)<>50 THEN GO
TO 210
206 LET s=s+10: IF s/1000=INT (
s/1000) THEN GO TO 300
207 PRINT AT 21,6;s: BEEP .01,2
0: GO TO 150
210 PRINT FLASH 1;AT y,x;"(9a)
": FLASH 0: PRINT AT 21,17+l;" "
: LET l=l-1: IF l=0 THEN GO TO

```



```

240 BEEP .01,0: GO TO 120
240 IF hs<s THEN LET hs=s
250 PRINT AT 21,26:hs
260 PRINT AT 11,8: FLASH 1: INK
3:"Another Go ? (y/n)"
270 IF INKEY#="y" THEN GO TO 4
5
275 IF INKEY#="n" THEN STOP
280 GO TO 270
300 RESTORE 320: FOR n=1 TO 16:
READ a: BEEP .1,a: NEXT n
310 CLS: GO TO 50
320 DATA 0,12,2,10,3,8,4,7,7,4,

```

```

8,3,10,2,12,0
400 IF MY<20 THEN PRINT AT MY+
1,MX;" "
401 IF SCREEN$(MY,MX)=">" THEN
GO TO 210
405 IF SCREEN$(MY,MX)=" " THEN
LET MX=RND*20+6: BEEP .01,40: L
ET MY=20: RETURN
410 PRINT AT MY,MX: INK 4;"^":
LET MY=MY-1
420 IF MY=0 THEN PRINT AT MY+1
,MX;" ": LET MX=RND*20+6: LET MY
=20: RETURN
430 RETURN

```



**S**EVERAL SKIING programs have been included in *Sinclair Programs* previously but **Slalom** is faster than any of them and includes a variety of ski runs and difficulty levels. A course is displayed, including five gates. Reach the bottom as quickly as possible, bearing in mind that failing to go through a gate will incur a time penalty.

Move left with 5 and right with 8. Those keys allow you to travel downwards at any of seven angles and skill is needed to move in the proper direction.

Written for the 16K Spectrum by Neil Slater of High Wycombe, Buckinghamshire.

```

5 INK 0: PAPER 7: BORDER 7: C
LS
10 CLEAR 31999
20 FOR I=32000 TO 32020: READ
X: POKE I,X
30 NEXT I
40 DATA 0,221,33,0,125,33,0,00
,1,255,2,221,126,0,119,17,1,80,2
37,176,201
50 FOR I=32031 TO 32053
60 READ X: POKE I,X
70 NEXT I
80 DATA 1,33,31,125,102,46,0,1
7,8,0,229,213,205,181,3,209,225,
175,237,82,48,244,201
83 FOR I=1 TO 21: PRINT " (2
*isp:193) " (193
2*isp) " : NEXT I
85 PRINT AT 9,9:"(14*isp)":AT
11,9:"(14*isp)"
90 PRINT AT 10,10:"PRESS A KEY
"
100 FOR I=56 TO 63: POKE 32000,
I
110 RANDOMIZE USR 32001: RANDOM
IZE USR 32032
115 IF INKEY#<>" THEN GO TO 18
0
120 NEXT I
130 FOR I=63 TO 56 STEP -1: POK
E 32000,I
140 RANDOMIZE USR 32001: RANDOM
IZE USR 32032
145 IF INKEY#<>" THEN GO TO 18
0
150 NEXT I
160 GO TO 100
180 POKE 32031,1
190 INK 0: PAPER 0: BORDER 0: C
LS
200 INPUT "COURSE NUMBER:";R: R
RANDOMIZE R
210 INPUT "DIFFICULTY:";DF
215 IF DF<2 THEN GO TO 210
220 INPUT "CONTROLS ARE:5-LEFT,
8-RIGHT PRESS ENTER.
"; LINE A#
230 DIM F(5): FOR I=1 TO 5
240 LET F(I)=INT (RND*236)+4: I
F I=1 THEN LET X=100: GO TO 260
250 LET X=F(I-1)
260 IF ABS (F(I)-X)>DF*5 THEN G
O TO 240
270 NEXT I
280 DIM A(7): DIM B(7): FOR I=1
TO 7: READ A(I),B(I): NEXT I
290 DATA -6,-1,-4,-1,-2,-2,0,-3
,2,-2,4,-1,6,-1
300 LET T=0: LET X=110: LET Y=1
75
310 LET D=4
320 FOR I=1 TO 5
330 PLOT F(I),175-I*30: DRAW 0,
0: DRAW -3,-2: DRAW 3,-1: PLOT F
(I)+16,175-I*30: DRAW 0,0: DRAW
-3,-2: DRAW 3,-1
340 NEXT I
350 PLOT X,Y
360 PRINT AT 0,0:"TIME=0"

```



# SLALOM

```

370 LET N=145: POKE 32000,56: R
ANDOMIZE USR 32001: BEEP .5,20
380 PAPER 7: BORDER 7
1000 LET D=D+(INKEY#="8" AND D<7
)-(INKEY#="5" AND D>1)
1010 IF X+ACD>255 OR X+ACD<1 T
HEN LET D=4
1020 IF Y+B(D)<=N THEN GO SUB 15
00
1030 LET T=T+1: PRINT AT 0,6:T
1040 DRAW A(D),B(D): LET X=X+ACD
: LET Y=Y+B(D)
1050 GO TO 1000
1500 LET N=N-30: IF N=-30 THEN G
O TO 2000
1505 LET Q=(175-N)/30-1
1510 IF N<0 THEN LET N=0

```

```

1520 IF X>=F(0) AND X<=F(0)+16 T
HEN POKE 32031,2: RANDOMIZE USR
32032: RETURN
1530 BEEP .2,-3: BEEP .3,-5: LET
T=T+30: RETURN
2000 FOR G=1 TO 20: FOR I=0 TO 5
6 STEP 0: POKE 32000,I: RANDOMIZ
E USR 32001: NEXT I: NEXT G
2010 PRINT AT 0,17:"TIME=";T;" U
NITS"
2020 INPUT "SAME COURSE ? "; LIN
E A#: LET A#=CHR$ CODE A#: IF A#
="Y" THEN RESTORE 200: PAPER 0:
BORDER 0: CLS: RANDOMIZE R: GO
TO 220
2030 POKE 32031,6: RANDOMIZE USR
32032: RUN

```



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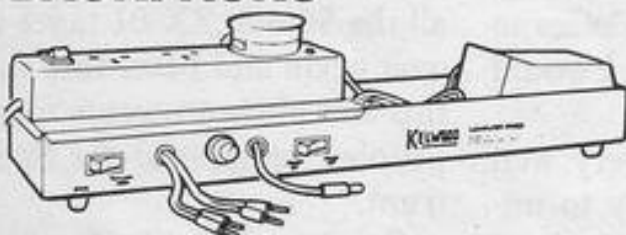


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**Y**OUR AIM is to succeed in completing the fifth level of **Quasimodo** and thus to reach Esmerelda. On the first three levels you must jump the barrels and the holes to ring the bell. On the fourth level, swing down the rope, jump the barrels and ring the bell. On the fifth level jump the barrels and climb the ropes until you meet Esmerelda. The faster you complete each level the more points you will score.

Written for the 16K Spectrum by Ian Maddock of Stockport, Cheshire.

# QUASIMODO



```

5 GO SUB 9000
6 LET hs=0
10 GO SUB 5000
20 IF 1=1 THEN GO TO 1000
21 IF 1=2 THEN GO TO 2000
22 IF 1=3 THEN GO TO 3000
23 IF 1=4 THEN GO TO 4000
24 IF 1=5 THEN GO TO 4500
1000 BORDER 5: PAPER 5: INK 0: C
LS: PRINT AT 1,29; a$; AT 2,29; b$
; AT 3,29; c$
1010 PLOT 243,156: DRAW 0,-44
1015 FOR z=9 TO 11: PRINT AT z,0
: INK 4: "(4*isp:sp:5*isp:sp:5*isp
P:sp:5*isp:sp:5*isp:sp:3*isp)"
NEXT z
1020 FOR z=11 TO 21: PRINT AT z,
0: INK 4: "(32*isp)"
NEXT z
1030 PRINT AT a,b;"f"
1040 PRINT AT 0,0;"SCORE "sc
1050 PRINT AT 0,12;"HI-SCORE "hs
1052 PRINT AT 21,0: PAPER 4;"LIV
ES "lives
1053 PRINT AT 4,0;"LEVEL "l
1055 BEEP .1,10
1060 FOR c=30 TO 0 STEP -1
1061 LET bo=bo-10: PRINT AT 2,0:
"BONUS "bo
1063 PRINT AT 0,6;sc
1064 PRINT AT a,b+1;" "
1065 PRINT AT a,b;"f"
1070 PRINT AT 0,c: INK 3;"g"
1071 IF b>=30 THEN GO TO 9950
1072 PRINT AT 0,0;" "
PRINT AT
7,0: INK 5: PAPER 5;"
"
1080 LET b=b+(INKEY$="p" AND b<3
0)-(INKEY$="i" AND b>1)
1090 IF INKEY$="1" THEN LET a=7:
LET b=b+2: PRINT AT a,b;"f": AT
a+1,b-2;" "
LET a=a: PRINT AT a
,b;" "
1095 IF c=b-2 THEN BEEP .05,20:
LET sc=sc+10
1100 PRINT AT a,b-1;" "
PRINT AT
0,c+1;" "
1101 PRINT AT a-1,b;" "
1105 IF a=7 THEN PRINT AT a+1,b:
" "
1109 IF 1=3 THEN GO SUB 6000
1110 IF b=c THEN GO SUB 1960
1111 IF b=4 AND a=0 THEN GO TO 7
200
1112 IF a=8 AND b=10 THEN GO TO
7200
1113 IF a=8 AND b=16 THEN GO TO
7200
1114 IF a=8 AND b=22 THEN GO TO
7200

```



```

1115 IF a=8 AND b=28 THEN GO TO
7200
1116 IF 1=2 AND a=8 AND b=7 THEN
GO TO 7200
1117 IF 1=2 AND a=8 AND b=13 THE
N GO TO 7200
1118 IF 1=2 AND a=8 AND b=19 THE
N GO TO 7200
1119 IF 1=2 AND a=8 AND b=25 THE
N GO TO 7200
1120 NEXT c
1130 GO TO 1055
1950 RETURN
1960 IF ATTR(a,b)=43 THEN GO TO
7000
1999 RETURN
2000 PRINT AT 0,0;"
"
PRINT AT 1
,29;a$; AT 2,29;b$; AT 3,29;c$; PL
OT 243,156: DRAW 0,-44
2020 FOR z=9 TO 11: PRINT AT z,0
: INK 4: "(4*isp:sp:2*isp:sp:2*isp
P:sp:2*isp:sp:2*isp:sp:2*isp:sp:
2*isp:sp:2*isp:sp:2*isp:sp:3*isp
)"
NEXT z
FOR z=11 TO 21: PRIN
T AT z,0: INK 4: "(32*isp)"
NEXT
z
2030 PRINT AT a,b;"f"
2040 PRINT AT 0,0;"SCORE "sc
2050 PRINT AT 0,12;"HI-SCORE "hs
2052 PRINT AT 21,0: PAPER 4;"LIV
ES "lives
2053 PRINT AT 4,0;"LEVEL "l
2055 GO TO 1055
3000 PRINT AT 0,0;"
"
AT 1,29;a$;
AT 2,29;b$; AT 3,29;c$; PLOT 243,
156: DRAW 0,-44
FOR z=9 TO 11:
PRINT AT z,0: INK 4: "(4*isp:sp:2
*isp:sp:2*isp:sp:2*isp:sp:2*isp:
sp:2*isp:sp:2*isp:sp:2*isp:sp:2*
isp:sp:3*isp)"
NEXT z
FOR z=11
TO 21: PRINT AT z,0: INK 4: "(32
*isp)"
NEXT z
3010 PRINT AT 0,0;"SCORE "sc; AT
0,12;"HI-SCORE "hs; AT 4,0;"LEV
EL "l; AT 21,0: PAPER 4;"LIVES "
lives
3020 FOR g=4 TO 30 STEP 3: PRINT
AT 10,g;"f": AT 9,g;"1"
NEXT g
3030 PRINT AT a,b;"f"
3040 GO TO 1055
4000 CLS: PRINT AT 1,29;a$; AT 2
,29;b$; AT 3,29;c$; AT 1,24;a$; AT
2,24;b$; AT 3,24;c$; PLOT 243,156
: DRAW 0,-44: PLOT 203,156
4005 PRINT AT 1,0;a$; AT 2,0;b$; A
T 3,0;c$
4010 FOR z=9 TO 14: PRINT AT z,0
: INK 4: "(9*isp:17*isp:6*isp)"
N
EXT z
4020 FOR z=14 TO 21: PRINT AT z,
0: INK 4: "(32*isp)"
NEXT z
4030 PLOT 203,156: DRAW 0,-80
4040 PLOT 76,156: DRAW 0,-80
4050 PRINT AT 0,0;"SCORE "sc; AT
0,12;"HI-SCORE "hs; AT 4,0;"LEV
EL "l; AT 21,0: PAPER 4;"LIVES "
lives
4060 PRINT AT a,b;"f"
BEEP .1,1
0: FOR c=24 TO 9 STEP -1
4065 PAPER 4
4070 LET bo=bo-10: PRINT AT 2,1
2;"BONUS "bo
4075 PAPER 5
4080 PRINT AT a,b;"f": AT a,b+1;"
"
AT a,b-1;" "
AT 13,c+1;" "
AT
13,c: INK 3;"g"
4090 LET b=b+(INKEY$="p" AND b<3
0)-(INKEY$="i" AND b>1)
4100 IF a=9 THEN IF INKEY$="1" T
HEN LET a=7: LET b=b+2: PRINT AT
0,b-2;" "
AT a,b;"f"
FOR v=1 T
O 20: NEXT v: LET a=0: PRINT AT
7,b;" "
AT a,b;"f"
4105 IF a=13 THEN IF INKEY$="1"
THEN LET a=12: LET b=b+2: PRINT
AT 13,b-2;" "
AT a,b;"f"
FOR v=
1 TO 20: NEXT v: LET a=13: PRINT
AT 12,b;" "
AT a,b;"f"
4110 IF ATTR(a,b-1)=43 THEN BEE
P .1,20: LET sc=sc+10: PRINT AT
0,6;sc

```

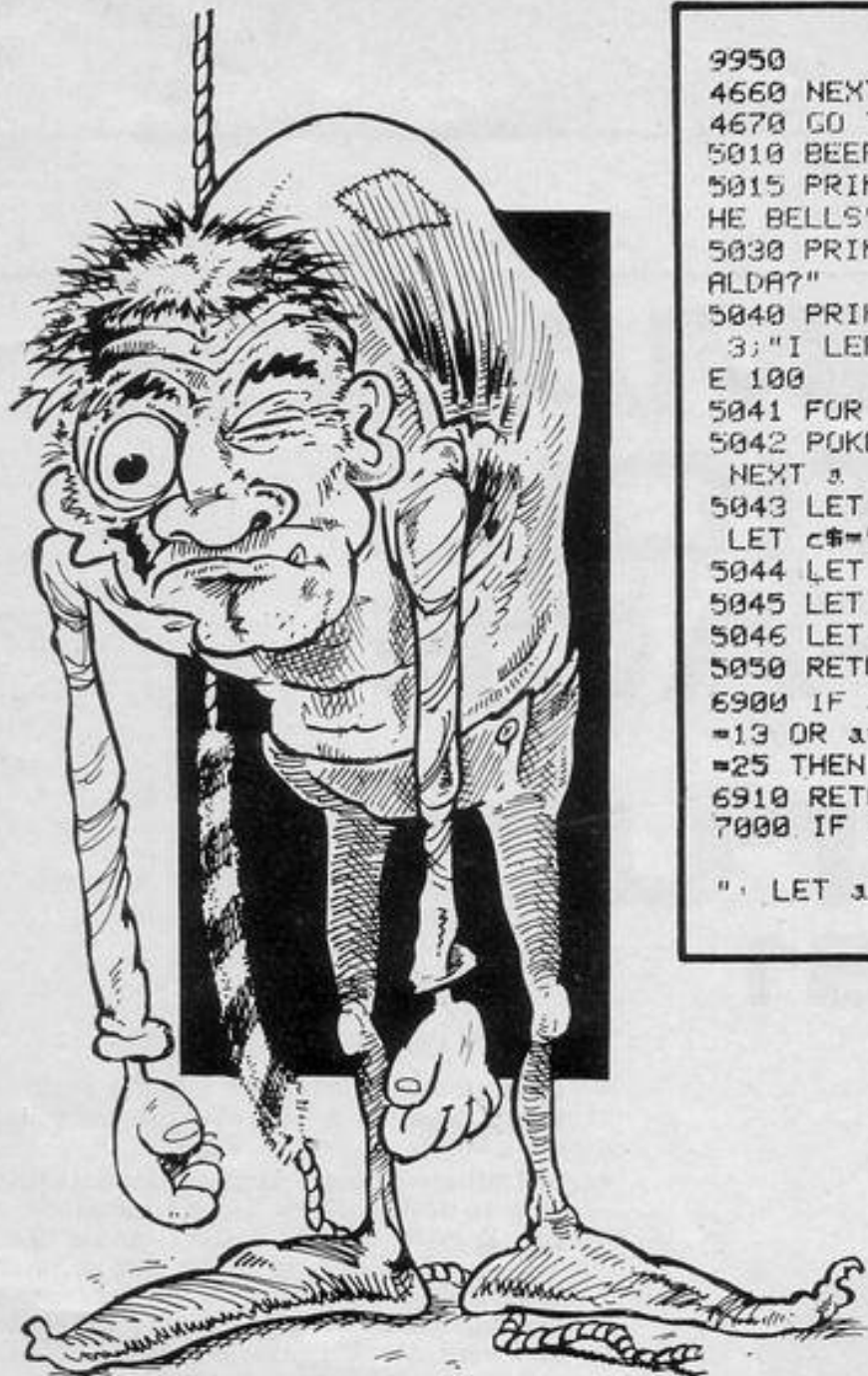
```

4120 IF ATTR(a,b)=43 THEN GO TO
7000
4130 IF b=9 THEN LET a=13: LET b
=b+1: PLOT 76,156: DRAW 0,-80: P
RINT AT 0,0;" "
4140 IF b=25 THEN LET a=0: LET b
=b+1: PRINT AT a,b;"f": AT 13,24:
" "
PLOT 203,156: DRAW 0,-80
4150 IF b>=30 THEN PRINT AT a,b-
1;" "
AT a,b;"f"
GO TO 9950
4155 PLOT 203,156: DRAW 0,-80
4160 NEXT c: PRINT AT 13,9;" "
GO TO 4060
4500 CLS: FOR g=4 TO 20 STEP 4:
PRINT AT 0,0;"
"
OVER 1; AT 9,0:
"
OVER 0: NEXT g
4510 PLOT 243,24: DRAW 0,16
4520 PLOT 12,56: DRAW 0,16
4530 PLOT 243,88: DRAW 0,16
4540 PLOT 12,120: DRAW 0,16
4550 PLOT 234,144: DRAW 0,20: DR
AW 20,0: DRAW 0,-20: DRAW -20,0
4560 PRINT AT 2,30;"f"
4565 LET a=19: LET b=1
4570 BEEP .1,10: FOR c=30 TO 0 S
TEP -1: PRINT AT 0,0;"SCORE "sc
; AT 0,12;"HI-SCORE "hs; AT 2,0;"
LEVEL "l; AT 2,12;"LIVES "lives
4580 PRINT AT a,b;"f": AT a,b+1;"
"
AT a,b-1;" "
4583 LET bo=bo-10: PRINT AT 21,0
;"BONUS "bo
4585 PLOT 234,144: DRAW 0,20: DR
AW 20,0: DRAW 0,-20: DRAW -20,0
4590 FOR g=3 TO 19 STEP 4: PRINT
AT 9,g: INK 3;"g": AT 9,c+1;" "
AT 9,0;" "
NEXT g
4600 LET b=b+(INKEY$="p" AND b<3
0)-(INKEY$="i" AND b>1)
4610 IF INKEY$="1" THEN LET a=a-
1: LET b=b+2: PRINT AT a+1,b-2;"
"
AT a,b;"f"
FOR s=1 TO 20: NE
XT s: LET a=a+1: PRINT AT a-1,b:
" "
AT a,b;"f"
4620 IF ATTR(a,b)=43 THEN GO TO
7000
4630 IF c=b-1 OR c=b-2 THEN BEEP
.1,20: LET sc=sc+10: PRINT AT 0
,6;sc
4640 IF a=19 AND b=30 THEN LET a
=15: PRINT AT 19,29;" "
4650 IF a=15 AND b=1 THEN LET a=
11: PRINT AT 15,2;" "
4653 IF a=11 AND b=30 THEN LET a
=7: PRINT AT 11,29;" "
4656 IF a=7 AND b=1 THEN LET a=3
: PRINT AT 7,2;" "
4659 IF a=3 AND b=30 THEN GO TO

```







```

9950
4660 NEXT c
4670 GO TO 4570
5010 BEEP 1,20: BEEP 1,17
5015 PRINT "" CAN YOU RING T
HE BELLS"
5030 PRINT "" AND SAVE ESMAR
ALDA?"
5040 PRINT "TAB 3:"P RIGHT"TAB
3:"I LEFT"TAB 3:"1 JUMP": PAUS
E 100
5041 FOR a=0 TO 704
5042 POKE 23692,255: PRINT " "
NEXT a
5043 LET a$="abc": LET b$=" "
LET c$="e"
5044 LET l=1: LET lives=3
5045 LET sc=0: LET a=8
5046 LET b=1: LET bo=5000
5050 RETURN
6900 IF a=8 AND b=7 OR a=8 AND b
=13 OR a=8 AND b=19 OR a=8 AND b
=25 THEN GO TO 7200
6910 RETURN
7000 IF l<>5 THEN PRINT AT 8,0:"
" LET a=8: LET b=0: LET lives=1

```

```

ives-1: IF lives<1 THEN GO TO 71
00
7005 IF l=5 THEN LET lives=lives
-1: IF lives<1 THEN GO TO 7100
7010 BEEP .3,-20: BEEP .3,-21: B
EEP .3,-22: GO TO 20
7100 FOR g=1 TO 10: BEEP .3,-30:
BEEP .3,-31: BEEP .3,-32: NEXT
g: CLS
7105 PRINT AT 10,7:"YOU SCORED "
:sc:AT 14,7:"HI-SCORE "hs:AT
18,7:"YOU GOT TO LEVEL "l:AT 21
,2:"PRESS ANY KEY TO PLAY AGAIN"
7110 IF hs<sc THEN LET hs=sc: PR
INT AT 14,7:"HI-SCORE "hs
7120 PAUSE 0: CLS: GO TO 10
7200 PRINT AT a+2,b: FLASH 1:"f"
:AT a,b:"": GO TO 7000
9000 CLS: FOR a=USR "a" TO USR
"q"+7
9010 READ user: DEEP .01,0: POKE
a,user
9020 NEXT a: RETURN
9030 DATA 0,0,0,1,3,7,15,15
9040 DATA 0,24,64+32+16+8+4+2,25
5,255,255,255,255
9050 DATA 0,0,0,128,128+64,128+6
4+32,128+64+32+16,128+64+32+16
9060 DATA 15,31,63,255,0,0,0,0
9070 DATA BIN 11110000,BIN 11111
000,BIN 11111100,255,0,0,0,0
9080 DATA 60,60,24,255,60,BIN 00
100100,BIN 01000010,0
9090 DATA 0,60,126,255,255,126,6
0,0
9950 PRINT AT 10,5: FLASH 1:"YOU
HAVE A BONUS OF "bo: FOR g=1 T
O 15: BEEP .1,10: BEEP .1,5: NEX
T g: LET l=l+1: LET sc=sc+bo: LE
T bo=5000: LET a=8: LET b=1: LET
c=0: IF l=6 THEN GO TO 9960
9955 GO TO 20
9960 CLS: PRINT AT 0,6: FLASH 1
:"YOU SAVED ESMARELDA": FOR y=0
TO 10: FOR x=20 TO 35: BEEP .005
:a: NEXT x: NEXT y
9970 LET l=5: GO TO 7105

```

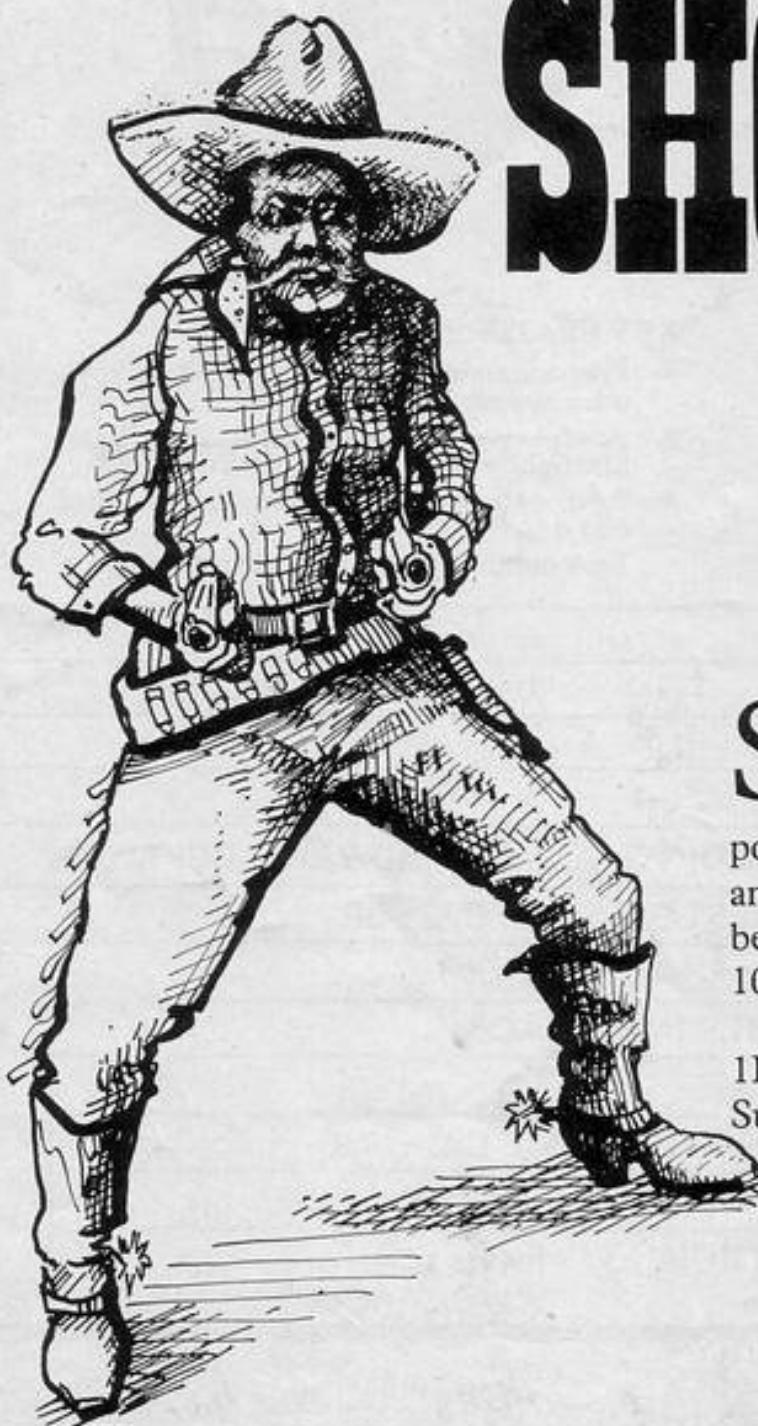
# SHARP

# SHOOTER

```

10 LET Z=100
20 FOR B=1 TO 10
30 PRINT "(sp:9f:9h)"
40 NEXT B
50 FOR B=0 TO 20
60 PRINT AT 6,B:">="
70 IF INKEY$<>" THEN GOTO 110
80 NEXT B
90 LET Z=Z-5
100 GOTO 150
110 FOR D=5 TO 0 STEP -1
120 PRINT AT D,B+1:"=":AT D,B+1
:""
130 NEXT D
140 LET Z=Z-2
150 PRINT AT 6,B:""
160 FOR B=0 TO 29
170 PRINT AT 0,B:
180 IF PEEK (PEEK 16390+256*PEE
K 16399)<>0 THEN GOTO 50
190 NEXT B
195 PRINT AT 0,0:"SCORE "Z:
200 PRINT AT 10,1:"GAME*OVER PL
AY AGAIN? PRESS ANY KEY"
210 PAUSE 40000
220 CLS
230 RUN

```



**S**HOOT all the boxes, without missing any or going off the screen. If you miss a box, two points will be deducted from your score and if you go off-screen five points will be deducted. The maximum score is 100.

**Sharp Shooter** was written for the 1K ZX-81 by Colin Baxter of Crawley, Sussex.



# SPECTRAL PIANO

**W**E HAD a good deal of difficulty selecting a Spectrum piano-playing routine for the magazine. Fourteen-year-old Tim Whittaker of Cardiff faced stiff competition, most notably from Paul Matthews, before winning the nomination with his clear and easily-mastered **Spectral Piano**.

Whittaker has been programming for two years, during which time he upgraded his machine from a ZX-81 to a

Spectrum. He is a completely self-taught programmer as there has, as yet, been no opportunity for him to study computing at school. He wrote the program in one day, basing it on his knowledge of the piano. Once he has mastered machine code he hopes to be able to develop it further and give his Spectrum the full capabilities of an electronic organ.

When the program is RUN the screen shows a section of keyboard with

keys which appear to move. Pressing the appropriate key causes the notes played to be raised or lowered by an octave, giving a range stretching from bottom C to top B. It is likewise very easy to vary the length of the note—any key from 1 to 9 will change it instantly.

All instructions are included in the program. Capital letters in quotation marks in lines 400 to 500 should be entered in graphics mode. (16K Spectrum).

```

10 GO SUB 1000
14 FOR c=144 TO 151
15 FOR n=0 TO 7
16 READ a: POKE USA CHR$ c+n,a
17 NEXT n: NEXT c
18 DATA 15,15,15,15,15,15,7,0
19 DATA 240,240,240,240,240,24
0,224,128
20 DATA 15,15,15,15,7,0,0,0
21 DATA 240,240,240,240,224,12
8,128,128
22 DATA 128,128,128,128,128,25
5,128,128
23 DATA 0,0,0,0,0,255,0,0
24 DATA 128,128,255,128,128,12
8,128,128
25 DATA 0,0,255,0,0,0,0,0
30 PAPER 2: BORDER 0: CLS
40 REM variables
41 LET a$="middle"
42 LET len=.3
43 LET o=0
100 REM keyboard
105 PAPER 7
110 FOR n=6 TO 21: FOR m=7 TO 1
4
120 PRINT AT m,n;" "
130 NEXT m: NEXT n
140 INK 0: PLOT 64,61: DRAW 111
,0
150 FOR n=64 TO 162 STEP 16: PL
OT n,56: DRAW 0,63: NEXT n
160 FOR n=9 TO 20 STEP 2: FOR m
=7 TO 10
170 IF n=13 THEN NEXT n
180 PRINT AT m,n;"■": REM 5+
shifted 5
190 NEXT m: PRINT AT m,n;"CD":
REM 5 CD
200 NEXT n
300 REM notes
310 IF INKEY$="i" THEN LET o=-1
2: LET a$="bottom"
315 IF INKEY$="o" THEN LET o=0:
LET a$="middle"
320 IF INKEY$="p" THEN LET o=12
: LET a$="top"
321 IF INKEY$="1" THEN LET len=
.1
322 IF INKEY$="2" THEN LET len=
.2

```

```

323 IF INKEY$="3" THEN LET len=
.3
324 IF INKEY$="4" THEN LET len=
.4
325 IF INKEY$="5" THEN LET len=
.5
326 IF INKEY$="6" THEN LET len=
.6
327 IF INKEY$="7" THEN LET len=
.7
328 IF INKEY$="8" THEN LET len=
.8
329 IF INKEY$="9" THEN LET len=
.9
340 INK 7: PAPER 2: PRINT AT 0,
20;"Length ";len;" "
350 PRINT AT 16,9;"↑";AT 17,7;a
$;"C"
400 INK 0: PAPER 7: IF INKEY$="
a" THEN PRINT AT 14,8;"EF": BEEP
len,0+o: PRINT AT 14,8;"GH"
410 IF INKEY$="w" THEN PRINT AT
11,9;"AB": BEEP len,1+o: PRINT
AT 11,9;"CD"
420 IF INKEY$="s" THEN PRINT AT
14,10;"EF": BEEP len,2+o: PRINT
AT 14,10;"GH"
430 IF INKEY$="e" THEN PRINT AT
11,11;"AB": BEEP len,3+o: PRINT
AT 11,11;"CD"
440 IF INKEY$="d" THEN PRINT AT
14,12;"EF": BEEP len,4+o: PRINT
AT 14,12;"GH"
450 IF INKEY$="f" THEN PRINT AT
14,14;"EF": BEEP len,5+o: PRINT
AT 14,14;"GH"
460 IF INKEY$="t" THEN PRINT AT
11,15;"AB": BEEP len,6+o: PRINT
AT 11,15;"CD"
470 IF INKEY$="g" THEN PRINT AT
14,16;"EF": BEEP len,7+o: PRINT
AT 14,16;"GH"
480 IF INKEY$="y" THEN PRINT AT
11,17;"AB": BEEP len,8+o: PRINT
AT 11,17;"CD"
485 IF INKEY$="h" THEN PRINT AT
14,18;"EF": BEEP len,9+o: PRINT
AT 14,18;"GH"
490 IF INKEY$="u" THEN PRINT AT
11,19;"AB": BEEP len,10+o: PRIN
T AT 11,19;"CD"

```





```

500 IF INKEY$="J" THEN PRINT AT
14,20;"EF": BEEP len,11+0: PRIN
T AT 14,20;"GH"
600 GO TO 300
1000 PAPER 2: CLS : PRINT INK 7;
AT 0,7;"Spectral piano"; OVER,1;
INK 7;AT 0,7;
1005 LET n$="ASDFGHJ"
1010 LET l=1: FOR n=7 TO 20 STEP
2: PRINT PAPER 7; INK 0;AT 10,n
;n$(l): LET l=l+1: NEXT n
1020 LET n$="WETYU"
1030 LET l=1: FOR n=8 TO 16 STEP
2: IF n=12 THEN NEXT n
1040 PRINT PAPER 0; INK 7;AT 8,n
;n$(l): LET l=l+1: NEXT n
1050 PRINT AT 6,0;"USE THESE KEY
S";AT 11,7;"↑";AT 12,3;"MIDDLE C"
1060 PRINT AT 4,20;"octave keys"
: PRINT AT 6,22;"[ ] [ ] [ ]"
1070 PRINT AT 2,2;"Length of not
e in frctions";AT 3,4;"of a seco
nd";AT 4,1;"[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]"
1080 PRINT INK 7;AT 14,0;"Spectr
al Piano is a computer versio
n of a piano.Once you knowhow it
works you will soon be trying
to play your own tunes."
1090 INPUT "When ready press ent
er";z$
1100 PRINT OVER 1; FLASH 1; PAPE
R 7;AT 12,3;" "; FLASH 0;
OVER 0; PAPER 2; INK 7;AT 14,0;
"The keyboard is set out like
that of a real piano.By pressin
g the keys A TO J (on the second
row up)you will get a note from

```

```

middle C TO B.To obtain the
sharps and flats press any of
the keys displayed in white on
black."
1110 INPUT "press enter when rea
dy";z$
1120 PRINT INK 7;AT 14,0;"S.p al
so has a function to alter the oc
tave you are playing in, and a
function to change the length
of a note."
1-If at any time durin
g playing you wish to change
octaves just press key [ ] to get
the octave starting at bottom
C,key [ ] to get the middle C oct
ave and [ ] to get the top C octav
e"
1130 INPUT "press enter when rea
dy";z$
1140 PRINT INK 7;AT 9,0;"2.-if a
t any time during playing you wi
sh to change the duration of the
notes you are pressing press a
ny key from 1 TO 9.The higher
the number the longer the not
e"
1150 FOR n=15 TO 21: PRINT AT n,
0;
": NEXT n: REM 32
1190 INPUT "Have you understood?
(y/n)";z$: IF z$<>"y" THEN GO TO
1000
1200 RETURN
9998 PAUSE 0
9999 PAPER 7: INK 0: BORDER 7: F
LASH 0: CLS

```



# WINDFALL



**C**ATCH the apples in your basket as the windfalls fall from the trees. Beware, because Farmer Haynes is on the prowl and if he catches you he will have your guts for garters.

**Windfall** was written for the 16K ZX-81 by Nicky Thorpe, aged 14, of Ashford, Kent.

```

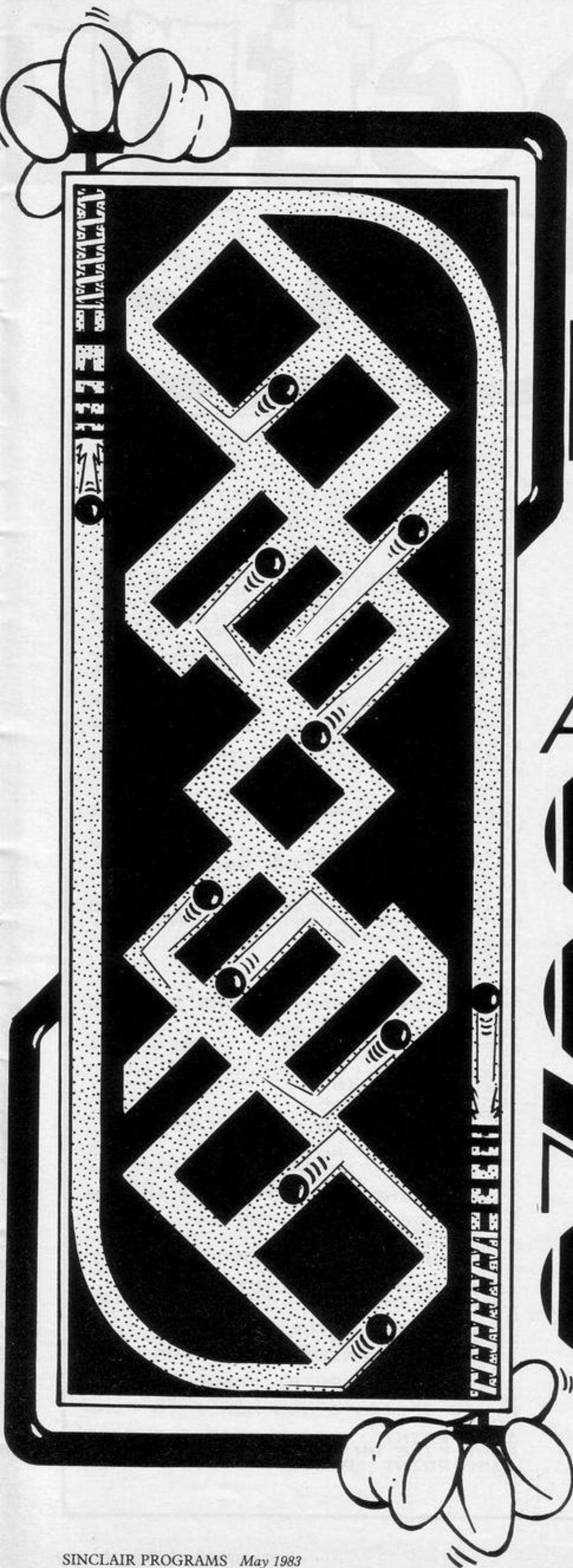
1 REM "APPLE"
2 LET Y=13
3 LET Z=0
10 PRINT AT 0,10;" (4*1SP) "
20 PRINT AT 1,10;" (6*1SP) "
30 PRINT AT 2,10;"(8*1SP)"
40 PRINT AT 3,10;" (6*1SP) "
50 PRINT AT 4,10;" (4*1SP) "
60 PRINT AT 5,10;" (2*1SP) "
"
70 PRINT AT 6,10;" (2*1SP) "
"
80 PRINT AT 7,10;" (2*1SP) "
"
90 PRINT AT 8,10;" (2*1SP) "
"
95 PRINT AT 8,0;"(32*9h)"
96 PRINT AT 21,0;"(32*1SP)"
110 PRINT AT 4,11;"*"
120 PRINT AT 4,16;"*"
130 PRINT AT 3,10;"*"
140 PRINT AT 3,17;"*"

141 PRINT AT 9,0;"(1SP:30*SP:1SP)"
142 PRINT "(1SP:30*SP:1SP)"
143 PRINT "(1SP:30*SP:1SP)"
144 PRINT "(1SP:30*SP:1SP)"
145 PRINT "(1SP:30*SP:1SP)"
146 PRINT "(1SP:30*SP:1SP)"
147 PRINT "(1SP:30*SP:1SP)"
148 PRINT "(1SP:30*SP:1SP)"
149 PRINT "(1SP:30*SP:1SP)"
150 LET X=20
151 PRINT "(1SP:30*SP:1SP)"
152 PRINT "(1SP:30*SP:1SP)"
153 PRINT "(1SP:30*SP:1SP)"
154 LET A=INT (RND*10+0)
156 LET B=10
157 PRINT AT B,A;"*";AT B-1,A;"
"
158 LET B=B+1
170 IF INKEY#="5" THEN LET Y=Y-1
180 IF INKEY#="8" THEN LET Y=Y+1

185 IF B=X AND A=Y+1 THEN GOTO 300
186 IF B=X AND A=Y+2 THEN GOTO 300
190 IF Y<1 THEN LET Y=Y+1
192 PRINT AT 19,8;"
"
200 IF Y>26 THEN LET Y=Y-1
205 IF B=21 THEN GOTO 400
210 PRINT AT X,Y;" (9w:9h) "
220 GOTO 157
300 LET Z=Z+5
305 PRINT AT 0,0;"SCORE=";Z
310 GOTO 154
400 CLS
410 PRINT "YOU DROPPED AN APPLE
"
411 PRINT "AND THE FARMER GOT Y
OU."
413 PRINT
415 PRINT "YOU SCORED ";Z
420 PRINT
430 PRINT "DO YOU WISH TO PLAY
AGAIN?"
435 PRINT
437 PRINT " (Y) OR (N) "
440 IF INKEY#="Y" THEN GOTO 500
450 IF INKEY#="N" THEN GOTO 600
460 IF INKEY#<>" THEN GOTO 440
470 GOTO 440
500 CLS
510 GOTO 1
600 CLS
610 PRINT AT 10,10;"ok goodbye"
620 STOP

```





ANDREW KEY of Witney, Oxfordshire, sent **Diagono**, this intriguing man versus computer routine for the 16K ZX-81. In conception, it is a kind of low-tech version of our Program of the Month, requiring you to move the graphic A across the board from 0 to 0, the loser being the player who is forced to play into the top right-hand corner. You may move up (I), across (-), or diagonally (/), illegal moves being rejected.

As listed, the game is not too difficult but it will certainly interest readers exploring man/machine interaction. Lower-case letters in brackets are graphic instructions.

```

100 PRINT "DIAGONO",, "-----"
1000 FOR N=1 TO 9
1010 PRINT TAB 5;"0-0-0-0-0-0-0-0-0-0"
1020 IF N<9 THEN PRINT TAB 5;"I/
I/I/I/I/I/I/I/I"
1030 NEXT N
1040 PRINT AT 2,21;"(inverse 0)"
1050 LET Y=9
1060 LET X=1
2000 PRINT AT Y*2,X*2+3;"(graphi
c A)"
2010 PRINT AT 20,0;"YOUR MOVE?..
.(I,-,/) "
2020 INPUT M$
2030 IF M$<>"I" AND M$<>"/" AND
M$<>"-" THEN GOTO 2020
2040 IF ((M$="-" OR M$="/") AND
X=9) OR ((M$="I" OR M$="/") AND
Y=1) THEN GOTO 2020
2050 LET NX=X+(M$="-" OR M$="/")
2060 LET NY=Y-(M$="I" OR M$="/")
2070 PRINT AT Y*2,X*2+3;"0"
2080 LET X=NX
2090 LET Y=NY
2100 PRINT AT Y*2,X*2+3;"(graphi
c A)"
2110 IF X=9 AND Y=1 THEN GOTO 5E
3
2125 LET C$="0"
2130 IF X<9 AND Y>1 AND (M$="-"
OR M$="I") THEN LET C$="/"
2140 IF C$="/" THEN GOTO 3000
2150 IF (Y<=X AND X<9) OR (Y>X A
ND Y=1) THEN LET C$="-"
2160 IF (Y>X AND Y>1) OR (Y<=X A
ND X=9) THEN LET C$="I"
3000 PRINT AT 20,0;"I MOVE ",C$;
"
3003 LET QW=RND**RND**RND
3005 PRINT AT Y*2,X*2+3;"0"
3010 LET X=X+(C$="-" OR C$="/")
3020 LET Y=Y-(C$="I" OR C$="/")
3030 PRINT AT Y*2,X*2+3;"(graphi
c A)"
3040 IF X=9 AND Y=1 THEN GOTO 6E
3
3050 GOTO 2E3
5000 PRINT AT 20,0;"I WIN THIS G
AME
"
5010 GOTO 9999
6000 PRINT AT 20,0;"YOU WIN THIS
GAME
"
9999 STOP

```



# INCA GOLO

```

1 GOTO 9200
10 LET R=INT (RND*5)+1
20 DIM N(5)
40 LET F=INT (RND*5)+1
50 FOR L=1 TO 5
60 LET N(L)=F
70 NEXT L
80 FOR L=1 TO 5
90 LET N(L)=N(L)+R
92 LET R=R+R
94 NEXT L
95 PRINT AT 0,0;
100 FOR L=1 TO 4
110 PRINT N(L); " ";
120 NEXT L
130 PRINT "?"
140 PRINT
150 PRINT "WHAT IS THE NEXT NUMBER? PRESS ANY KEY WHEN YOU KNOW"
165 IF INKEY<>" " THEN GOTO 170
166 LET TM=TM-1
167 IF TM<=0 THEN GOTO 8000
168 PRINT AT 0,20;"TIME:";TM;" "
"
169 GOTO 165
170 INPUT I
172 LET TMS=TMS+TM
174 LET S=" "
"
175 PRINT AT 0,0;S;AT 2,0;S;AT 3,0;S
180 IF I=N(5) THEN GOTO 9000
190 GOTO 8000
1000 FAST
1005 LET A=0
1010 LET B=31
1020 LET C=21
1030 FOR L=1 TO 14
1040 FOR F=A TO B
1050 PRINT AT C,F;"(1SP)"
1060 NEXT F
1070 LET A=A+1
1080 LET B=B-1
1090 LET C=C-1
2000 NEXT L
2040 LET TM=TI
2050 LET TMS=0
2055 SLOW
2060 PRINT AT 20,0;" "
"
2070 PRINT AT 18,16;" " AT 19,16;" " AT 20,16;" "
2080 PRINT AT 15,12;" " AT 16,14;" (9h) " AT 18,10;" "
2090 PRINT AT 15,10;" " AT 16,10;" " AT 17,10;" "
3000 PRINT AT 14,18;" " AT 15,18;" " AT 16,18;" " AT 13,15;" "
" AT 9,15;" "
3010 LET H="(9h)"
3020 PRINT AT 10,14;"(5*9h)" AT 11,14;"(5*9h)"
3030 PRINT AT 20,15;H;AT 18,15;H;AT 15,11;H;AT 18,12;H;H;AT 14,18;H;AT 12,15;H;AT 8,15;H
3040 PRINT AT 4,15;"(99'9w)" AT 5,14;"(9t'2*97'9w)" AT 6,14;"(95'*) (98)" AT 7,14;"(95) (2*1SP)"
3050 PRINT AT 20,3;"(9h) (9h) (9h)"
3060 LET X=19
3070 LET Y=0
3080 PRINT AT X+1,Y;
3090 LET P=PEEK (PEEK 16398+256*PEEK 16399)
4000 PRINT AT X,Y+1;
4010 LET Q=PEEK (PEEK 16398+256*PEEK 16399)
4020 PRINT AT X-1,Y;
4030 LET W=PEEK (PEEK 16398+256*PEEK 16399)
4040 PRINT AT X,Y-1;
4050 LET E=PEEK (PEEK 16398+256*PEEK 16399)
6010 IF P=136 OR W=136 OR E=136 OR Q=136 THEN GOTO 8
6012 IF Q=23 THEN GOTO 9100
6015 PRINT AT X,Y;"(1*)"
6016 PRINT AT X,Y;" "
6020 LET X=X+(INKEY="6" AND P=0)-(INKEY="7" AND W=0)
6030 LET Y=Y+(INKEY="8" AND Q=0)-(INKEY="5" AND E=0)
6040 GOTO 3080
8000 FOR L=1 TO 19
8010 PRINT AT 20,L;"(99)"
8015 NEXT L
8018 PRINT AT X,Y;"(1*)"
8020 PRINT AT 1,0;"SORRY BUT YOU ARE TRAPPED"
8030 PRINT "THERE IS NO ESCAPE .
....."
8040 PRINT AT 0,0;"LAST NO.=";N(5);" NOT ";I
8050 GOTO 9112
9000 PRINT AT X+1,Y;" " AND P=136;AT X,Y+1;" " AND Q=136;AT X-1,Y;" " AND W=136;AT X,Y-1;" " AND E=136
9010 GOTO 3080
9110 PRINT AT 0,10;"**WELL DONE**" AT 2,0;"YOUR SCORE WAS:";TMS
9120 PRINT AT 3,0;"PRESS ANY KEY TO TRY AGAIN "
9130 IF INKEY=" " THEN GOTO 9130
9140 CLS
9160 GOTO 9500
9240 PRINT AT 0,1;" ***** INC A GOLD*****"
9250 PRINT TAB 5;"TO GET THE INC A GOLD";TAB 5;"YOU MUST REACH THE";TAB 5;"TOP OF THE INCA TEMPLE ";
"
9300 PRINT TAB 5;"THE DOORS(9h) HAVE LOCKS.";TAB 5;"THEY WILL ONLY OPEN IF";TAB 5;"YOU GIVE THE CORRECT";TAB 5;"COMBINATION WHEN ASKED.";
9380 PRINT TAB 5;"THE WRONG ONE AND YOU";TAB 5;"ARE TRAPPED FOREVER."
"
9390 PRINT TAB 5;"USE KEYS CURSOR";TAB 5;"KEYS TO MOVE"
9420 PRINT "*****PRESS ANY KEY TO START*****"
9430 IF INKEY=" " THEN GOTO 9430
9500 CLS
9520 PRINT "PLEASE ENTER LEVEL OF DIFFICULTY*****50 TO 1000*****"
9522 PRINT
9523 PRINT "(THE LOWER THE HARDER THE GAME)"
9524 INPUT TI
9526 IF TI>1000 OR TI<50 THEN GOTO 9524
9528 CLS
9610 GOTO 1000
9620 SAVE "INC."
9630 RUN

```



**Y**OUR AIM is to reach the gold at the top of the Inca Temple. Move with cursor keys 5 to 8 until you reach a door. Each door must be opened by the correct combination and any error means that you will be trapped there for ever.

**Inca Gold** was written for the 16K ZX-81 by K Royles of Rhyl, Clwyd.





**A**S DOCTOR WHO you must use keys 5 and 8 to steer the tardis on to the landing pad of the planet you are approaching. Avoid the stars and planets which appear or their gravitational field will send you crashing downwards. If you land safely you will gain 30 extra points and move to the next sheet.

**Tardis Lander** was written for the 1K ZX-81 by Terry Bishop of Leyton, London.

```

1 LET S=VAL "-30"
2 LET S=S+VAL "30"
3 LET Y=INT (RND*10)
4 CLS
5 PRINT AT 15,0;"(11*9a)"
6 PRINT AT 14,RND*Y;"(1sP)"
7 FOR X=0 TO VAL "15"
8 PRINT AT RND*13,RND*Y;"(91)"
9 AT RND*13,RND*Y;CHR# 29
10 PRINT AT X,Y;
20 LET C=PEEK (PEEK 16398+VAL
"256"*PEEK 16399)
30 IF C=23 OR C=1 OR C=0 THEN
GOTO 200
40 IF C=VAL "120" THEN GOTO 2
50 PRINT "(1)"
55 LET Y=Y+(INKEY#="8" AND Y<1
0)-(INKEY#="5" AND Y>0)
60 LET S=S+VAL "2"
70 NEXT X
80 GOTO 4
200 FOR T=X TO VAL "15"
200 FOR T=X TO VAL "15"
210 PRINT AT 1,Y;"(1)" AT T,Y;
"A"
220 NEXT T
230 PRINT AT T-1,Y;"(1)"
240 PRINT "(1s:1c:10:1r:1e:95)"
JS

```

# TARDIS LANDER



# FOXHUNT



**U**SING the cunning of a fox you have to weave in and out of the descending pack of hounds. As you negotiate one pack, you are met by another pack.

The highest score appears at the end of each game, along with the name of the scorer. Use cursor key 5 to move left and 8 to move right. Beware, you have only one life.

**Foxhunt** was written for the 1K ZX-81 by Adam Evans of East Dereham, Norfolk.

```

2 LET M=0
3 LET N=20
4 LET Z=10
5 CLS
6 LET T=20-A
7 LET X=INT (RND*9)+1
10 FOR N=1 TO A
15 PRINT AT A,Z-1;"(sP:11:SP)"
20 PRINT AT N,0;"(11*1sP)" AT
N-1,0;" " AT N,X;" "
50 LET Z=Z+(INKEY#="8" AND Z<1
1)-(INKEY#="5")
60 NEXT N
70 IF Z<>X THEN GOTO 500
95 LET A=A-1
100 GOTO 6
500 PRINT "SPLAT"
502 PAUSE 50
505 CLS
507 IF T>M THEN PRINT "NAME?"
508 IF T>M THEN INPUT US
509 IF T>M THEN LET M=T
510 PRINT "SCORE=";T;" HIGH SC
ORE HELD BY ";US;" WITH ";M;" PO
INTS"
520 INPUT CS
530 GOTO 3

```



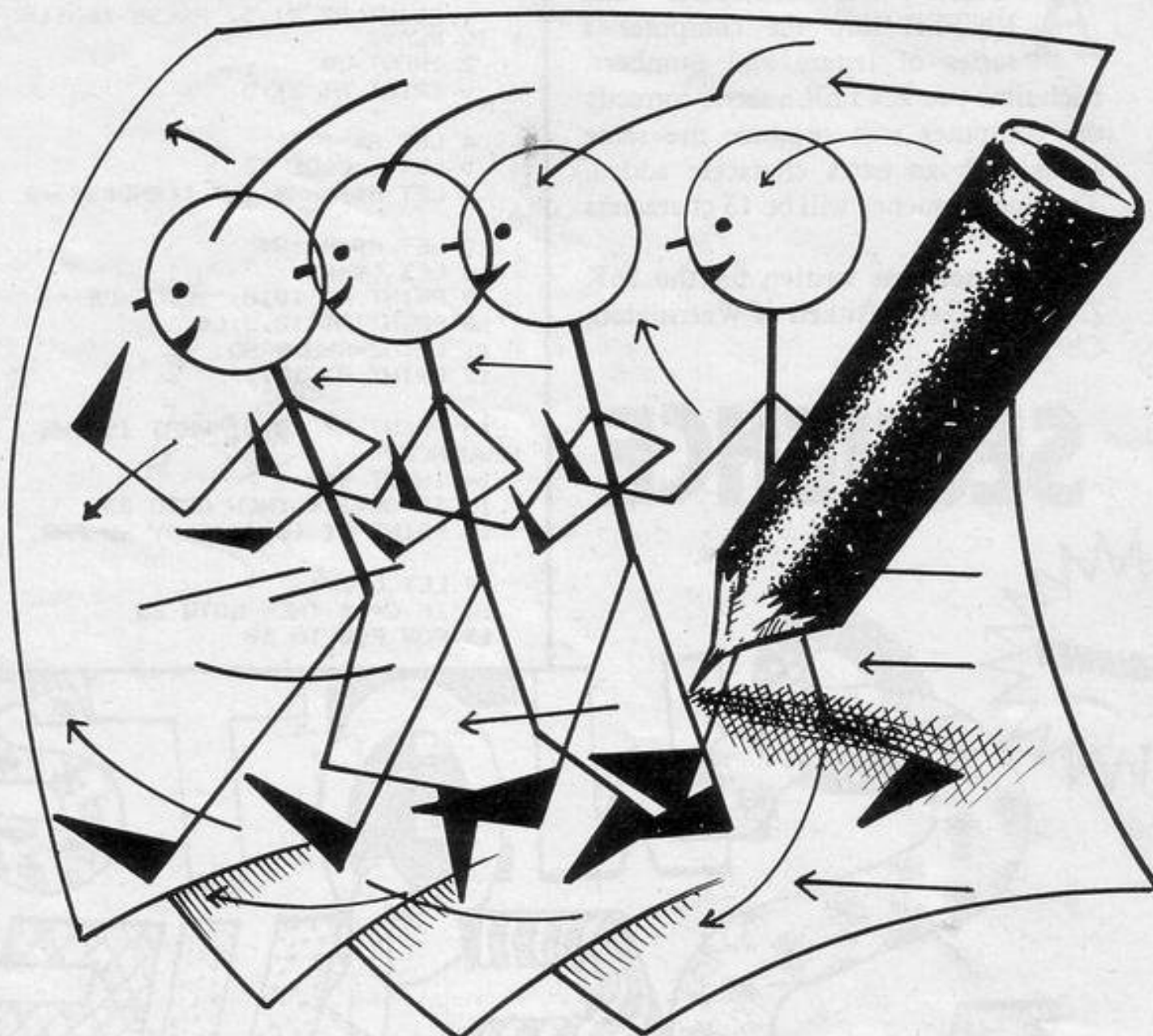
**A**NIMATION was published as 3D was in our September issue, to suggest new ways of using Spectrum graphics. Jonathon Healey of Winchester, Hampshire has produced a man who walks from the right to the left of the screen. The movement is smooth and resembles that of an animated cartoon.

We would be interested in seeing programs which develop the technique further (16K Spectrum).

```

10 FOR f=0 TO 11
20 FOR n=0 TO 7
30 READ a: POKE USR CHR$(144+
  f)+n,a
40 NEXT n: NEXT f
50 DATA 0,0,0,0,0,0,0,0,2,1,0,
  0,0,0,0,3,0,0,0,0,0,112,112,92,1
  20,164,96,96,80,208,156,132
60 DATA 0,0,0,0,1,1,0,0,0,0,3,
  0,0,0,0,3,0,0,0,0,192,192,128,19
  2,224,208,224,192,192,192,192,19
  2
70 DATA 0,0,0,0,0,28,92,72,62,
  9,9,56,68,66,190,7,0,0,0,0,0,0,
  0,0,0,0,0,0,0,0,0
80 LET a$="abcd"
90 LET b$="efgh"
100 LET c$="ijkl"
110 FOR a=20 TO 0 STEP -1
120 FOR f=0 TO 2
130 READ a#
140 PRINT AT 10,a/a#( TO 2)AT
  11,a/a#( TO )
150 PAUSE 0
160 NEXT f
170 RESTORE 155
180 NEXT a
190 DATA a#,b#,c#
200 CLS: GO TO 140

```



# ANIMATION



# MIRROR PATTERNS

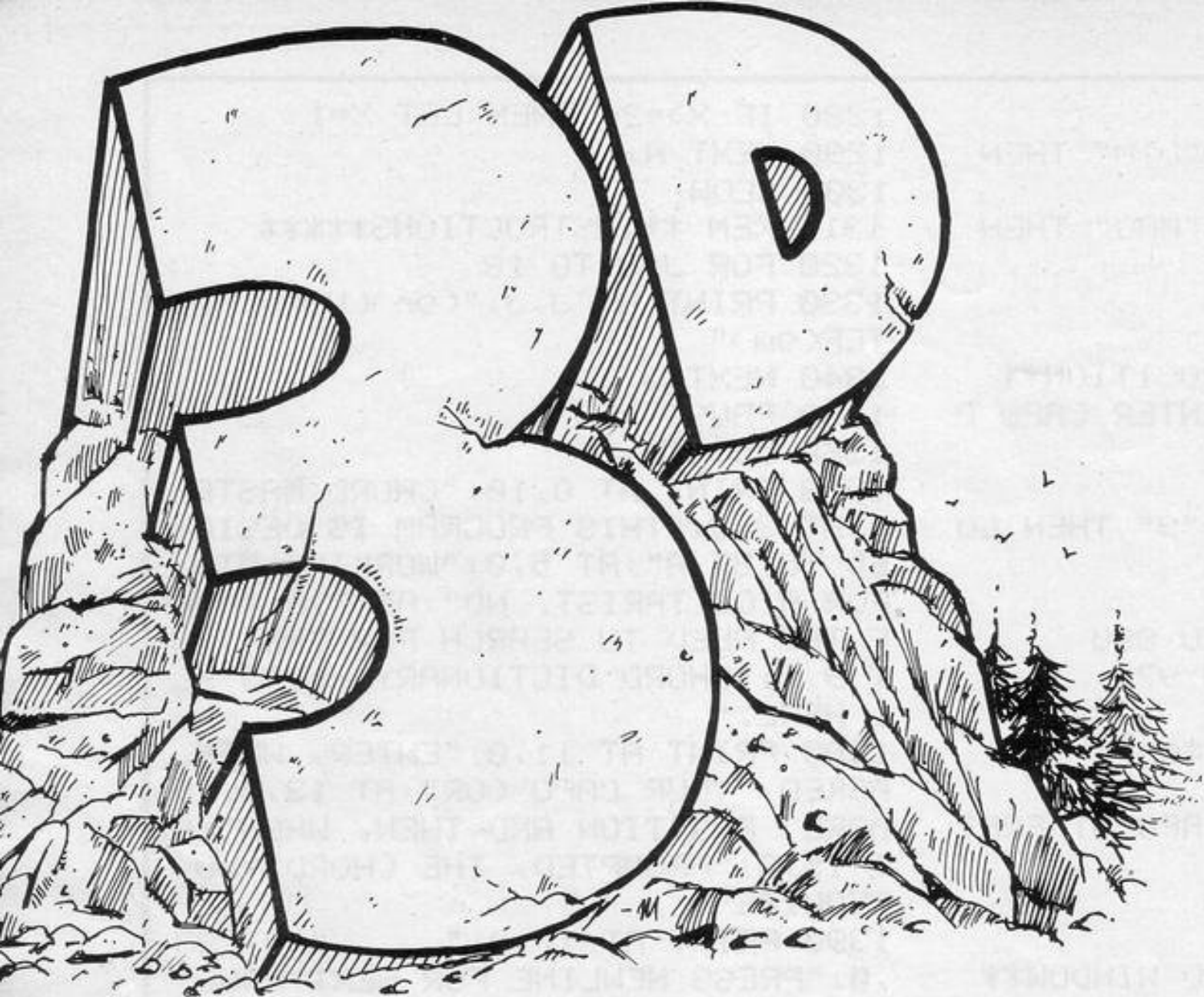
```

15 BORDER 0: PAPER 0: INK 6: C
  LS
20 FOR I=1 TO 160 STEP 7.55
30 PLOT 0,(160-I): DRAW 1,-(16
  0-I)
40 PLOT 0,I: DRAW 1,-I+160
50 NEXT I
60 FOR I=1.6 TO 4.7 STEP .1
70 INK 7: PLOT 127,86: DRAW 10
  0*COS I,50*SIN I
80 NEXT I: INK 5
9990 FOR J=0 TO 175: FOR I=0 TO
  127
9991 IF POINT (I,J)=1 THEN PLOT
  255-I,J
9992 NEXT I: NEXT J
9993 LET L=22520: LET G=22544
9994 FOR J=1 TO 22
9995 FOR I=15 TO 0 STEP -1
9996 POKE G+(15-I),PEEK (L+I)
9997 NEXT I
9998 LET L=L+32: LET G=G+32
9999 NEXT J

```

**M**IRROR PATTERNS, written for the Spectrum by Graham Walkden of Banchory, Kincardineshire, will copy the contents of the left-hand side of the screen to the right-hand side. Colours as well as patterns are copied. The program also contains a colourful demonstration.





# 3-D LETTERS

**T**HREE-DIMENSIONAL LETTERS, written for the Spectrum by P Monger of Reading, Berkshire draws large, three-dimensional letters on the screen. Only seven letters can be printed at once but the routine can be used again several times without clearing the screen, allowing impressive title pages to be created.

```

10 BORDER 7: INK 0: PAPER 7
20 LET a$="3D-WORD": LET p=30
30 PRINT AT 10,7:"© 1983 P.Monger": GO TO 100
40 PRINT PAPER 1: INK 7:AT 13,0:" Now you can write your own 3D words"
50 PRINT " PAPER 0: INK 7:" Now please follow the prompts. "
60 PRINT INK 7: PAPER 2: FLASH 1:AT 21,10:"Press any key"
70 PAUSE 0: CLS
80 INPUT "Pixels from top ( (1 sp)=8 pixels)" :p
90 INPUT "letters (7 max) " :a$
: IF LEN a$>7 OR LEN a$<1 THEN BEEP 1,-30: GO TO 90
100 LET a=LEN a$: PRINT INK 7:AT 21,0:a$
110 FOR f=0 TO 8*a-1: FOR n=0 TO 7
120 IF POINT (f,n)=0 THEN GO TO 160
130 PLOT f*4,n*4+135-p: DRAW 4,0: DRAW 0,4: DRAW -4,0: DRAW 0,-3: DRAW 3,0: DRAW 0,2: DRAW -2,0: DRAW 0,-1: DRAW 2,0: DRAW -2,-2
140 DRAW 5,5: DRAW 0,4: DRAW 0,-4: DRAW 4,0: DRAW 0,4: DRAW 0,-4: DRAW -5,-5
150 DRAW 0,4: DRAW 5,5: DRAW -4,0: DRAW -5,-5
160 NEXT n: NEXT f
170 IF a$="3D-WORD" THEN PAUSE 50: GO TO 40
180 INPUT "Write some more ? (y/n) " :w$
190 IF w$="n" THEN STOP
200 INPUT "Clear the screen ? (y/n) " :c$
210 IF c$="y" THEN CLS
220 GO TO 80

```

```

100 CLEAR 59903
110 LET ST=(234*256): PRINT AT 8,10:"POKE LEFT "
120 FOR I=15616 TO 15616+(255*8)
130 LET A$="": POKE 16384,PEEK I
140 GO SUB 200
150 PRINT AT 10,10:15616+(255*I)-1:" "
160 POKE ST,VAL ("BIN "+A$)
170 LET ST=ST+1
180 NEXT I
190 POKE 23607,233: STOP
200 FOR J=7 TO 0 STEP -1: IF POINT (J,175)=1 THEN LET A$=A$+"1"
: GO TO 220
210 LET A$=A$+"0"
220 NEXT J: RETURN
230 POKE 23607,233

```

**O**NCE THIS program is RUN it will reverse the entire character set, excluding user-defined graphics. The new character set can be called upon at any time, even after NEW has been pressed, by entering POKE 2307,233.

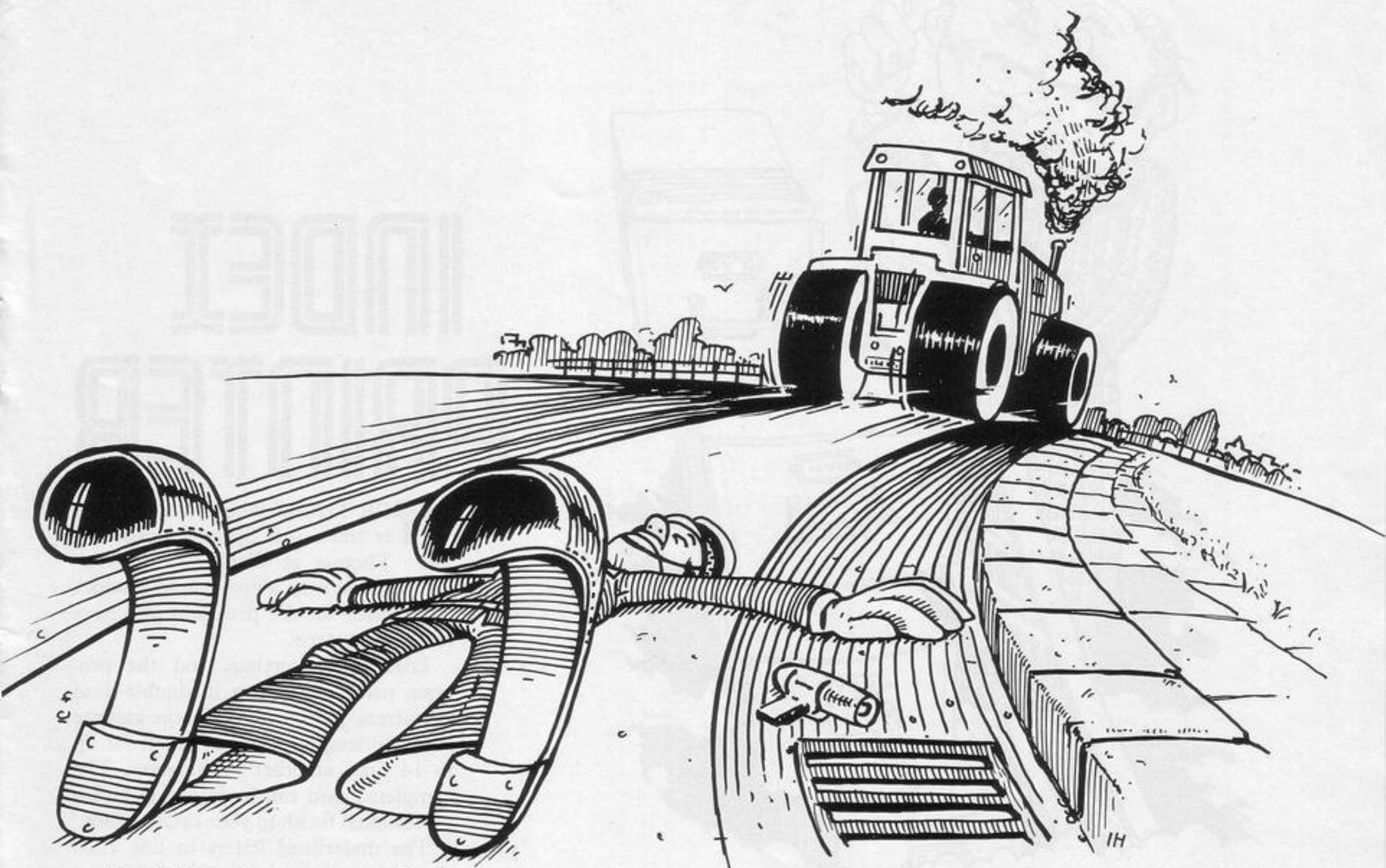
**Mirror Characters** was written for the 48K Spectrum by Graham Walkden of Banchory, Kincardineshire.

# MIRROR



# CHARACTERS





A BALL bounces around the screen and you must trap it using as few blocks as possible. Pressing any letter will place a block behind the ball. Once one ball has been trapped another will appear.

This program was written for the 16K ZX-81 by Roland Waddilove of Widnes, Cheshire.

# SPEED TRAP

```

100 REM      instructions
110 POKE 16418,0
120 PRINT TAB 10;"SPEED-TRAP",TAB 9;"(12*97)"
130 PRINT ,," THE IDEA OF THE GAME IS TO TRAP THE BALL. PRESSING ANY LETTER WILL PLACE A BLOCK JUST BEHIND THE BALL."
140 PRINT ,," THERE ARE 20 BALLS ALTOGETHER. USE AS FEW BLOCKS AS POSSIBLE."
150 PRINT AT 21,7;"Press a letter"
160 IF INKEY$="" THEN GOTO 160
170 CLS
200 REM START
210 LET BEST=100
220 LET BALL=1
230 LET BLOCKS=0
240 LET X=1
250 GOSUB 700
260 LET P=INT (RND*700)+PEEK 16396+256*PEEK 16397
270 IF PEEK P OR PEEK (P+X) THEN GOTO 260
300 REM GAME
310 POKE P,0
320 IF INKEY$<>"" THEN LET BLOCKS=BLOCKS+1

```

```

330 IF INKEY$<>"" THEN POKE P,8
340 LET P=P+X
350 POKE P,23
360 IF NOT PEEK (P+X) THEN GOTO 310
370 IF RND>.5 THEN GOTO 425
400 REM CHANGE DIRECTION
405 LET X=33
410 IF NOT PEEK (P+X) THEN GOTO 310
415 LET X=1
420 IF NOT PEEK (P+X) THEN GOTO 310
425 LET X=-33
430 IF NOT PEEK (P+X) THEN GOTO 310
435 LET X=-1
440 IF NOT PEEK (P+X) THEN GOTO 310
445 LET X=33
450 IF NOT PEEK (P+X) THEN GOTO 310
455 LET X=1
460 IF NOT PEEK (P+X) THEN GOTO 310
500 REM NEW BALL
510 LET BALL=BALL+1
520 PRINT AT 0,8;BLOCKS;AT 0,20;BALL AND BALL<21>

```

```

530 IF BALL<=20 THEN GOTO 260
600 REM GAME OVER
610 IF BEST>BLOCKS THEN LET BEST=BLOCKS
620 PRINT AT 23,6;BEST
630 FOR N=0 TO 100
640 NEXT N
650 PRINT AT 23,10;"Press P to play again"
660 IF INKEY$="" THEN GOTO 660
670 IF INKEY$="P" THEN GOTO 220
680 CLS
690 STOP
700 REM BORDER
710 CLS
720 PRINT " blocks="
730 PRINT " ball="
730 FOR N=1 TO 22
740 PRINT "(isp)";TAB 31;"(isp)"
750 NEXT N
760 PRINT " best="
770 PRINT AT 0,8;BLOCKS;AT 0,20;BALL;AT 23,6;BEST
780 RETURN
800 REM save
810 SAVE "SPEED-TRAP"
820 RUN

```





# LACE MAKER

**P**OLLY BROWN of Charlesworth, Cheshire wrote **Lace Maker** to generate patterns for use as design charts for punch-lace or Fair Isle work on domestic knitting machines. She adds that it would also be suitable for those designing filet crochet.

The program first requests the number of stitches in each pattern repeat — 6, 8 or 12 for the more popular makes of knitting machine — followed by the number of rows required. Lace Maker can cope with any stitch repeat between 4 and 16, and any number of rows between 4 and 20. (16K ZX-81).

```

1  RAND
2  GOSUB 9000
10  LET C$="HOW MANY ARE REQUIRED IN ONE REPEAT OF THE PATTERN? TYPE A NUMBER BETWEEN AND (INCLUSIVE) THEN PRESS NEWLINE."
20  LET R$="rows"
30  LET S$="stitches"
40  DIM D$(20,16)
50  DIM A$(16)
70  LET E=0
90  PRINT AT 0,0;C$(1 TO 9);R$;C$(9 TO 77);4;C$(77 TO 81);16;C$(81 TO 113)
100 INPUT N
110 PRINT N
115 IF N>16 OR N<4 THEN GOTO 40
120 PRINT AT 0,0;C$(1 TO 9);R$;C$(9 TO 77);4;C$(77 TO 81);20;C$(81 TO 113)
140 PRINT D
150 IF D>20 OR D<4 THEN GOTO 42
200 LET H=D/2
210 LET Z=INT (32/N)*N-N
220 LET Y=INT (22/(D+1))*(D+1)

```

```

230 LET G=N/2
240 IF G>INT G THEN LET G=G+1
250 CLS
255 LET L=0
260 IF L=Y THEN GOTO 1000
270 FOR E=1 TO INT H
280 GOSUB 1500
290 LET D$(E)=A$
295 NEXT E
300 IF H>INT H THEN GOSUB 1500
310 FOR F=E-1 TO 1 STEP -1
320 FOR C=0 TO Z STEP N
330 PRINT AT L,C;D$(F,1 TO N)
340 NEXT C
350 LET L=L+1
360 NEXT F
370 LET L=L+1
380 GOTO 260
400 PRINT "BETWEEN 4 AND 16 PLEASE"
410 GOTO 100
420 PRINT "BETWEEN 4 AND 20 PLEASE"
430 GOTO 130
1000 PRINT AT 21,0;"C TO CONTINUE, N FOR NEW SIZE"
1010 IF INKEY$="" THEN GOTO 1010

```

```

1020 IF INKEY$="C" THEN GOTO 250
1030 CLS
1040 GOTO 10
1500 FOR B=1 TO G
1510 LET A=INT (RND*2)
1520 IF A=1 THEN LET A$(B)=" "
1530 IF A=0 THEN LET A$(B)="*"
1540 NEXT B
1550 FOR B=B TO N
1560 LET A$(B)=A$(N+1-B)
1570 NEXT B
1580 FOR C=0 TO Z STEP N
1590 PRINT AT L,C;A$(1 TO N)
1600 NEXT C
1610 LET L=L+1
1620 RETURN
9000 CLS
9015 PRINT
9030 PRINT AT 20,4;"PRESS ANY KEY TO START"
9040 IF INKEY$="" THEN GOTO 9040
9045 CLS
9050 RETURN
9990 SAVE "LACEMAKER"
9991 RUN

```



```

10 GO SUB 9000: GO TO 1000
20 DEF FN g()=INT ((PEEK 23672
+256*PEEK 23673+65536*PEEK 23674
)/50)
30 LET ss=0: LET c$="Nobody"
40 PAPER 6: INK 1: BORDER 1: C
LS
50 LET t=0: LET s=0: LET a=10:
LET b=10: LET f$="": LET z=1: L
ET m=5: LET a$="8": LET b$=a$: D
IM x(35): DIM y(35): GO TO 170
60 LET f=INT (RND*9)+1: LET d=
INT (RND*16)+3: LET e=INT (RND*2
7)+2
70 IF SCREEN$ (d,e)<>" " THEN
GO TO 60
80 IF SCREEN$ (d,e+2)<>" " THE
N GO TO 60
90 IF SCREEN$ (d+1,e+1)<>" " T
HEN GO TO 60
100 IF SCREEN$ (d+2,e)<>" " THE
N GO TO 60
110 IF SCREEN$ (d+2,e+2)<>" " T
HEN GO TO 60
120 PRINT AT d,e: INK RND*4: "##
#"; AT d+1,e: INK RND*4: "##"; f: "##
"; AT d+2,e: INK RND*4: "###": RETU
RN
160 PRINT AT d,e: " "; AT d+1,e
: " "; AT d+2,e: " "; RETURN
170 PRINT AT 0,13: FLASH 1: "SNA
KE": FLASH 0
180 PRINT AT 2,0: "aaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaa"
190 FOR n=3 TO 20: PRINT AT n,0
: INK RND*3: "a": AT n,31: "a": NEX
T n
200 PRINT AT 21,0: "aaaaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaa"
210 PRINT AT 1,1: INK 0: "SCORE:
"; AT 1,11: INK 1: "TIME: "; AT 1,20
: INK 2: ss: " BY "; c$:
220 POKE 23674,255: POKE 23673,
255: POKE 23672,255: GO SUB 60:
GO TO 280
240 LET z=z+1: IF z=m THEN PRIN
T AT x(z),y(z): " ": LET z=1: LET
m=m+(1 AND m<35)
250 LET t=FN g(): PRINT AT 1,16
: t: IF t>=100 THEN GO TO 600
260 BEEP .001,40
270 PRINT AT a,b: INK RND*4: "f"
: LET b$=a$: PRINT AT x(z),y(z):
" "
280 IF INKEY$="" THEN LET b$=a$
290 LET a$=INKEY$: IF a$<>"8" A
ND a$<>"7" AND a$<>"6" AND a$<>"
5" THEN LET a$=b$
300 IF a$="5" THEN LET b=b-1: L
ET c=2
310 IF a$="6" THEN LET a=a+1: L
ET c=3

```

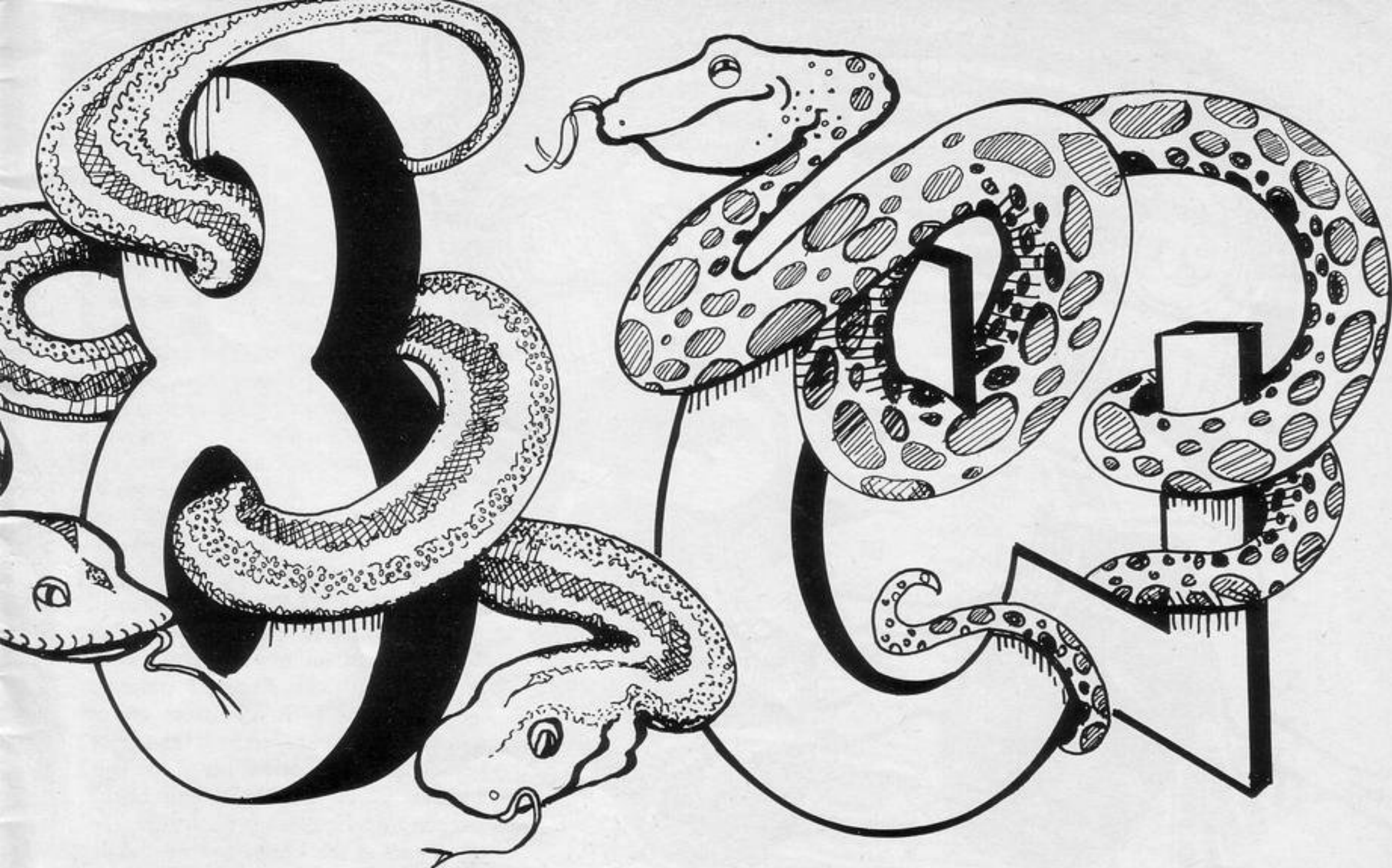
# SNAKE

```

320 IF a$="7" THEN LET a=a-1: L
ET c=1
330 IF a$="8" THEN LET b=b+1: L
ET c=0
340 LET x(z)=a: LET y(z)=b
350 IF SCREEN$ (a,b)="#" THEN G
O TO 400
360 IF SCREEN$ (a,b)<>" " THEN
GO TO 700
370 IF RND>.98 THEN GO SUB 160:
GO SUB 60
380 PRINT AT a,b: CHR$ (145+c)
390 GO TO 240
410 PRINT AT a,b: CHR$ (145+c)
420 LET s=s-1: INK 1: FOR n=f T
O 0 STEP -1: LET s=s+1: BEEP .00
0,n+30: PRINT AT 1,7: s: PRINT AT
d+1,e+1: n: NEXT n
440 GO SUB 160: PRINT AT a,b: CH
R$ (145+c): FOR n=0 TO 20: NEXT
n: GO SUB 60: GO TO 240
600 FOR n=60 TO 30 STEP -1: BEE
P .1,n: NEXT n
605 PRINT AT 2,0: FLASH 1: INK
2: "GAME OVER"
610 IF s>ss THEN PRINT AT 3,0:
FLASH 1: "NEW HIGH SCORE": LET ss
=s: GO TO 630
620 GO TO 650
630 INPUT "Input your name": c$:
IF LEN c$>7 THEN GO TO 630
650 INPUT "ANOTHER GO ?": d$: IF
d$="Y" OR d$="y" THEN GO TO 40
660 STOP

```





**V**ARIOUS NUMBERS appear on the screen. Running over a number will add it to your score. Your brightly-coloured snake is controlled with the usual cursor keys. Do not run

over your tail or hit the edges of the playing area.

As the game progresses your snake becomes longer, making your path more circuitous.

**Snake** was written for the 16K Spectrum by John Williamson of Moreton Morrell, Warwickshire.

```
700 PRINT AT a,b:CHR$(145+c)
710 FOR n=30 TO 1 STEP -1: BEEP
  .1,n: NEXT n: GO TO 650
1000 BRIGHT 1: PAPER 6: INK 2: B
ORDER 6: CLS
```

```
1020 PRINT AT 2,12: BRIGHT 1: FL
ASH 1: "SNAKE": AT 3,12: "█"
1040 PRINT AT 5,8: "INSTRUCTIONS"
: AT 5,8: OVER 1: "-----"
```

```
1060 PRINT "" In this game ca
lled "SNAKE" you have to bit
e the numbered boxes to increa
se your score by the amount o
f points displayed in th
e boxes."
```

```
1070 PRINT "" The Snake which y
ou control with the cursor k
eys 5,6,7,8 will slowly grow
longer and longer."
```

```
1090 PRINT #0: "Press a key ": PA
USE 0:
```

```
1100 LET e=26: LET d=7: LET f=9:
GO SUB 70
```

```
1110 LET x$=""
: "cccccccb": FOR n=24 TO 0 STEP -1
: BEEP .001,40: PRINT AT 0,0:x$(
n+1 TO 27): PAUSE 4: NEXT n
```

```
1130 FOR n=f TO 0 STEP -1: BEEP
.008,n+30: PRINT AT d+1,e+1:n: N
EXT n
```

```
1140 PAUSE 100
1150 FOR n=7 TO 21: PRINT AT n,0
:"
```

```
" : NEXT n
1160 PRINT AT 7,0: " There is a t
ime limit in this game, 3 minu
tes displayed on the screen i
n seconds, within this time yo
u have to get as larger score
as possible, a high score w
ith be recorded."
```

```
1170 PRINT "" If you bite your
self or the fence then the ga
me will end."
```

```
1230 PAUSE 0: GO TO 30
8999 STOP
```

```
9000 RESTORE : FOR n=144 TO 149:
FOR f=0 TO 7: READ a: POKE USR
CHR$(n)+f,a: NEXT f: NEXT n: RE
TURN
```

```
9150 DATA 8,16,8,106,93,16,8,16,
192,156,130,129,129,130,156,192,
24,36,66,66,66,0,129,255,3,57,65
,129,129,65,57,3,255,129,0,66,66
,66,36,24,24,36,90,189,189,90,36
,24
```



# CLOBBER CASTLE

```

5 GO SUB 9600
10 BORDER 5: BRIGHT 1: PAPER 5
CLS
20 DIM b(10,4)
30 LET a=5: LET sc=0
90 PRINT AT 1,9;"Clobber Castl
e"
100 PRINT AT 4,31;" "
110 FOR f=1 TO 17*32
120 PRINT PAPER 6: INK 2;"b"
130 NEXT f
140 GO SUB 7000
200 FOR f=1 TO 10
210 GO SUB 8000
215 FOR h=1 TO 5
220 PRINT AT 4,a;" f "
230 LET a=a+(INKEY#="P" AND a<2
9)-(INKEY#="Q" AND a>0)
240 IF INKEY#="F" THEN GO SUB
1000
490 NEXT h
500 NEXT f
550 GO TO 200
1000 PRINT AT 4,a+1;" "
1005 LET bh=0
1010 FOR n=5 TO 20
1020 IF ATTR(n,a+1)=112 THEN L
ET bh=1
1025 PRINT PAPER 6: AT n,a+1;"f"
1026 BEEP .025,0-n
1027 PRINT PAPER 6: INK 2: AT n,
a+1;"b"
1030 IF bh=1 THEN GO TO 1500
1050 NEXT n
1060
1070 RETURN
1500 LET sc=sc+10
1560 FOR j=1 TO 10
1570 IF b(j,2)=a+1 THEN GO TO 1
590
1580 NEXT j
1590 LET b(j,1)=10
1595 LET b(j,2)=INT(RND*29)+1
1600 LET b(j,3)=b(j,3)+1
1610 PRINT AT 0,0;"Score=";sc
1620 PRINT PAPER 6: INK 3: AT b(
j,1),b(j,2);CHR# b(j,4)
1630 RETURN
7000 FOR f=1 TO 10
7010 LET b(f,2)=INT(RND*29)+1
7020 LET b(f,1)=10: LET b(f,3)=1
7021 LET b(f,4)=147+INT(RND*2)
7025 PRINT PAPER 6: INK 0: AT b(
f,1),b(f,2);CHR# b(f,4)
7030 NEXT f
7040 RETURN
8000 PRINT PAPER 6: INK 2: AT b(
f,1),b(f,2);"b"
8005 BEEP .025,-30
8010 LET b(f,1)=b(f,1)-b(f,3)
8015 IF b(f,1)<=4 THEN GO TO 90
00
8016 IF b(f,4)=147 THEN LET b(f
,4)=148: GO TO 8020
8017 IF b(f,4)=148 THEN LET b(f
,4)=147

```

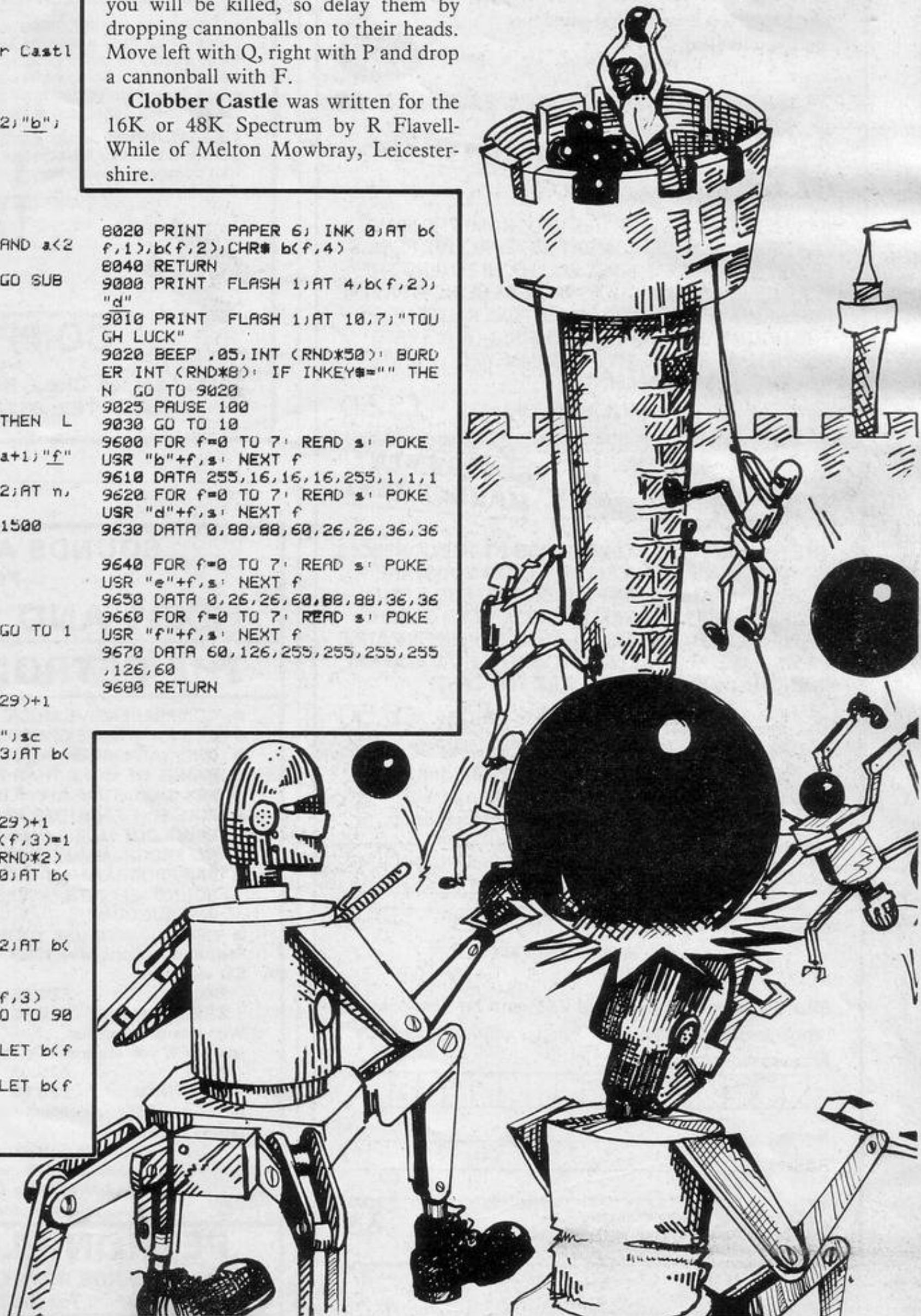
**Y**OU STAND on the battlements of your castle, which is being assailed by commando-style robots. If a robot reaches the battlement you will be killed, so delay them by dropping cannonballs on to their heads. Move left with Q, right with P and drop a cannonball with F.

**Clobber Castle** was written for the 16K or 48K Spectrum by R Flavell-White of Melton Mowbray, Leicestershire.

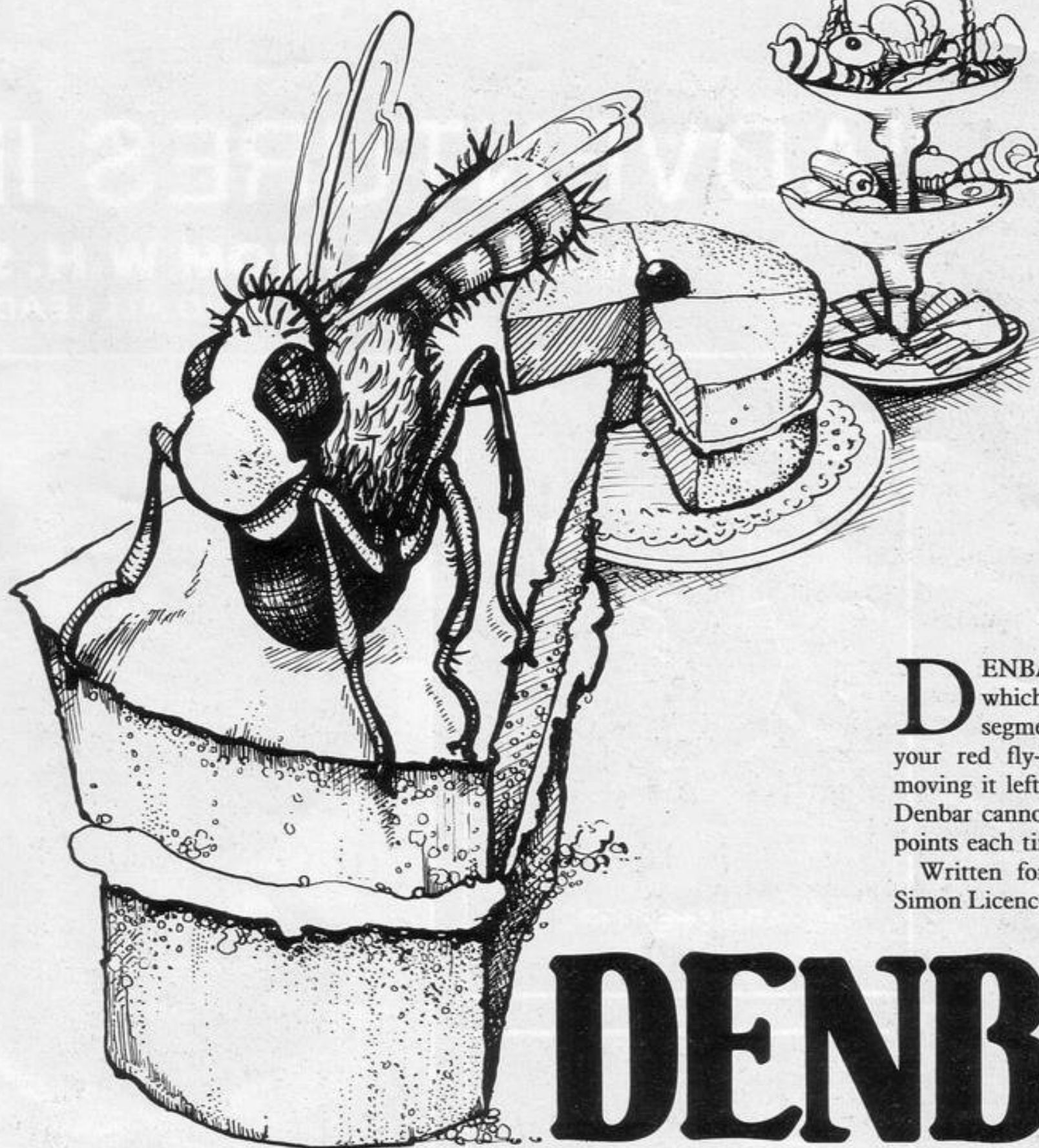
```

8020 PRINT PAPER 6: INK 0: AT b(
f,1),b(f,2);CHR# b(f,4)
8040 RETURN
9000 PRINT FLASH 1: AT 4,b(f,2);
"d"
9010 PRINT FLASH 1: AT 10,7;"TOU
GH LUCK"
9020 BEEP .05,INT(RND*50): BORD
ER INT(RND*8): IF INKEY#="" THE
N GO TO 9020
9025 PAUSE 100
9030 GO TO 10
9600 FOR f=0 TO 7: READ s: POKE
USR "b"+f,s: NEXT f
9610 DATA 255,16,16,16,255,1,1,1
9620 FOR f=0 TO 7: READ s: POKE
USR "d"+f,s: NEXT f
9630 DATA 0,88,88,60,26,26,36,36
9640 FOR f=0 TO 7: READ s: POKE
USR "e"+f,s: NEXT f
9650 DATA 0,26,26,60,88,88,36,36
9660 FOR f=0 TO 7: READ s: POKE
USR "f"+f,s: NEXT f
9670 DATA 60,126,255,255,255,255
,126,60
9680 RETURN

```







**D**ENBAR is an obnoxious fly which jumps from segment to segment of your cake. Move your red fly-swatter to hit Denbar, moving it left with 5 and right with 8. Denbar cannot be killed but you score points each time you hit it.

Written for the 16K Spectrum by Simon Licence of Canvey Island, Essex.

# DENBAR

```

5 GO SUB 9500
10 GO TO 9000
20 PLOT 48,72: DRAW 80,16: DRA
W -64,-64: DRAW -16,48
25 RETURN
30 PLOT 48,72: DRAW 80,16: DRA
W -80,16: DRAW 0,-32
35 RETURN
40 PLOT 48,104: DRAW 80,-16: D
RAW -64,64: DRAW -16,-48
45 RETURN
50 PLOT 64,152: DRAW 64,-64: D
RAW -16,80: DRAW -48,-16
55 RETURN
60 PLOT 112,168: DRAW 16,-80:
DRAW 16,80: DRAW -32,0
65 RETURN
70 PLOT 144,168: DRAW 48,-16:
DRAW -64,-64: DRAW 16,80
75 RETURN
80 PLOT 192,152: DRAW -64,-64:
DRAW 80,16: DRAW -16,48
85 RETURN
90 PLOT 208,104: DRAW -80,-16:
DRAW 80,-16: DRAW 0,32
95 RETURN
100 PLOT 192,24: DRAW -64,64: D
RAW 80,-16: DRAW -16,-48
105 RETURN
110 PLOT 192,24: DRAW -64,64: D
RAW 16,-80: DRAW 48,16
115 RETURN
120 PLOT 144,8: DRAW -16,80: DR
AW -16,-80: DRAW 32,0
125 RETURN
130 PLOT 112,8: DRAW 16,80: DRA
W -64,-64: DRAW 48,-16

```

```

135 RETURN
1000 IF INKEY="5" THEN GO SUB
(a*10): LET a=a-1: IF a=1 THEN
LET a=13
1010 IF INKEY="8" THEN GO SUB
(a*10): LET a=a+1: IF a=14 THEN
LET a=2
1020 INK 2: GO SUB (a*10): INK 7
1030 PRINT AT x,y: INK 4: "a"
1040 LET c=c+.2: IF c>1 THEN LE
T c=0: LET p=INT (RND*13): GO SU
B 4000
1050 PRINT AT 1,1: s: AT 17,1: t: "
": LET t=t-1
1060 IF t=0 THEN GO TO 8000
1070 IF p=a THEN LET s=s+5: FOR
n=0 TO 10: OUT 228,16+0: OUT 22
8,0: NEXT n
1080 GO TO 1000
4000 PRINT AT x,y: " ": GO SUB (p
*10)+5000
4010 RETURN
5020 LET x=14: LET y=9: RETURN
5030 LET x=11: LET y=8: RETURN
5040 LET x=7: LET y=9: RETURN
5050 LET x=4: LET y=12: RETURN
5060 LET x=4: LET y=16: RETURN
5070 LET x=4: LET y=19: RETURN
5080 LET x=7: LET y=22: RETURN
5090 LET x=11: LET y=23: RETURN
5100 LET x=14: LET y=22: RETURN
5110 LET x=17: LET y=19: RETURN
5120 LET x=19: LET y=15: RETURN
5130 LET x=18: LET y=12: RETURN
7010 PRINT INK 2: "ZX Spectrum"
: INK 4: " DENBAR WARS"
7020 PRINT AT 7,0: INK 4: "a a a

```

```

a a a a a a a a a a a a a a a
7030 PRINT " " INK 6: " "
S
.Licence 1983" " "PRESS ANY KEY T
O PLAY A GAME"
7040 PAUSE 0: PAUSE 0: PAUSE 0
7050 GO TO 9010
8000 BORDER 1: PAPER 1: INK 5: C
LS
8005 RESTORE 9540
8010 FOR n=1 TO 15: READ a: BEEP
.05,a: NEXT n
8025 IF s>hs THEN LET hs=s
8030 PRINT AT 10,10: "SCORE=": s: "
HI=": hs: " " ANY KEY
FOR ANOTHER GAME"
8040 PAUSE 0: PAUSE 0: PAUSE 0:
PAUSE 0
9000 BORDER 0: PAPER 0: INK 7: C
LS
9005 GO TO 7000
9010 CLS: FOR n=20 TO 130 STEP
10: INK 7: GO SUB n: NEXT n
9020 LET a=2: LET s=0
9030 LET c=0: LET x=14: LET y=9:
LET p=2: LET t=500
9040 PRINT AT 0,1: "SCORE": AT 16,
1: "TIME": PRINT £1: " S.Licence
1983"
9050 GO TO 1000
9500 LET hs=0: FOR n=0 TO 7: REA
D a: POKE USR "a"+n,a: NEXT n
9510 DATA 146,84,56,254,56,84,56
,84,146,0
9540 DATA 2,5,2,5,2,4,7,4,7,0,4,
0,4,5,9,5,9
9550 RETURN

```



# THE ABANDONED HOUSE

THE ABANDONED HOUSE is a 16K ZX-81 adventure game and is this month's program of the month. The author is Stephen Murgatroyd, aged 14, of Wantage, Oxon who has been programming since he received his ZX-81 in July. He is keen on adventure games and this is his first attempt at this type of game.

Caught in a fierce electric storm, you seek shelter in an abandoned house. The door closes behind you, there is only one way out and you must find it. You explore the house, you are given a 3D picture of each room as you enter it. You can find treasure or weapons but the house holds other secrets. The graphics are very good and add to the eerie atmosphere.

```

1 REM "ESCAPE"
2 FOR F=1 TO 22
3 PRINT "
4 NEXT F
5 PRINT AT 10,8;"
6 PRINT AT 11,7;"
7 PRINT AT 12,6;"
8 PRINT AT 13,7;"
9 PRINT AT 14,7;"
10 PRINT AT 15,7;"
11 PRINT AT 16,7;"
12 PRINT AT 17,7;"
13 PRINT AT 18,7;"
14 PRINT AT 19,7;"
15 PAUSE 100
16 PRINT AT 0,30;"
17 PRINT AT 1,29;"
18 PRINT AT 2,28;"
19 PRINT AT 3,27;"
20 PRINT AT 4,26;"
21 PRINT AT 5,25;"
22 PRINT AT 6,24;"
23 PRINT AT 7,23;"
24 PRINT AT 8,22;"
25 PAUSE 15
26 CLS
27 FAST
28 FOR F=1 TO 22
29 PRINT "
30 PRINT "
31 NEXT F
32 PRINT AT 6,6;"STEPHEN MURGA
33 PRINT AT 8,9;"PRESENTS"
34 PRINT AT 12,3;"

```

```

35 PAUSE 200
40 CLS
50 SLOW
55 PRINT AT 0,5;"ESCAPE"
56 PRINT AT 1,5;"
60 PRINT AT 2,0;" YOU ARE TRAP
PED IN AN ENORMOUS STORM,AND YOU
R CAR HAS BROKEN DOWN.YOU WALK
ALONG A ROAD LOOK-ING FOR A HOU
SE."
65 PRINT AT 6,0;" FINALLY YOU
FIND ONE AND KNOCK ON THE DOOR..
....."
80 PRINT AT 18,0;"PRESS ANY KE
Y"
85 IF INKEY$="" THEN GOTO 85
86 CLS
90 PRINT AT 0,0;"THE DOOR OPEN
S YOU ENTER THERE IS NO T
URNING BACK....."
91 PRINT AT 4,0;"THERE IS MAGI
C GOLD IN THE HOUSEWHICH WILL HE
LP YOU ESCAPE."
92 PRINT AT 7,0;"FIND THE WEAP
ONS FOR THEY WILL HELP YOU SURV
IVE."
95 PRINT AT 10,0;"THE HOUSE IS
FILLED WITH MANY HORRORS.YOU
MUST TRY TO ESCAPE"
96 PRINT AT 14,0;" THE GOLD AN
D WEAPONS ARE WORTH SOME MONEY S
O LOOK AFTER THEM."
100 PRINT AT 18,0;"PRESS ANY KE
Y TO BEGIN"
105 IF INKEY$="" THEN GOTO 105
109 CLS
300 LET S=100
310 LET G=0
320 LET W=0
500 CLS
505 SCROLL
506 SCROLL
510 LET A$="A LIBRARY."
520 LET B$="A HALL."
530 LET C$="A LOUNGE."

```





```

531 LET D$="A KITCHEN."
532 LET E$="A CELLER."
533 LET G$="A KITCHEN."
534 LET H$="A BEDROOM."
540 LET A=INT (RND*7)+1
550 IF A=1 THEN LET F$=B$
560 IF A=2 THEN LET F$=A$
570 IF A=3 THEN LET F$=C$
580 IF A=4 THEN LET F$=D$
582 IF A=5 THEN LET F$=E$
584 IF A=6 THEN LET F$=G$
586 IF A=7 THEN LET F$=H$
595 GOSUB 659
600 SCROLL
602 SCROLL
610 IF F$=A$ THEN GOSUB 700
620 IF F$=B$ THEN GOSUB 800
630 IF F$=C$ THEN GOSUB 900
631 IF F$=D$ THEN GOSUB 800
632 IF F$=E$ THEN GOSUB 700
634 IF F$=G$ THEN GOSUB 900
636 IF F$=H$ THEN GOSUB 700
640 SCROLL
650 SCROLL
659 FAST
660 CLS
661 PRINT AT 5,5;"██████████"
662 PRINT AT 19,5;"██████████"
663 FOR Z=0 TO 4
664 PRINT AT Z,Z;"██"
665 NEXT Z
666 LET X=0
667 FOR Z=29 TO 25 STEP -1
668 PRINT AT X,Z;"██"
669 LET X=X+1
670 NEXT Z
671 LET X=4
672 FOR Z=20 TO 21
673 PRINT AT Z,X;"██"
674 LET X=X-1
675 NEXT Z
676 LET X=25
677 FOR Z=20 TO 21
678 PRINT AT Z,X;"██"
679 LET X=X+1
680 NEXT Z
681 FOR Z=6 TO 18

```

```

682 PRINT AT Z,5;"██";AT Z,24;"██"
683 NEXT Z
684 PRINT AT 20,8;"YOU ARE FACI
NG ";AT 21,8;F$
685 SLOW
686 PAUSE 100
690 RETURN
700 PRINT "(1) EXPLORE (2) LOOK
FOR TRAPS"
710 INPUT U
720 IF U=1 THEN GOSUB 1000
730 IF U=2 THEN GOSUB 1100
735 SCROLL
736 SCROLL
740 GOTO 510
800 PRINT "(1) EXPLORE (2) LEAV
E"
810 INPUT E
820 IF E=1 THEN GOSUB 1000
830 IF E=2 THEN GOSUB 1300
833 SCROLL
836 SCROLL
840 GOTO 510
900 PRINT "(1) EXPLORE (2) REST
(3) LEAVE"
910 INPUT O
920 IF O=1 THEN GOSUB 1000
930 IF O=2 THEN GOSUB 1400
940 IF O=3 THEN GOSUB 1300
943 SCROLL
946 SCROLL
950 GOTO 510
1000 SCROLL
1005 SCROLL
1010 LET A=INT (RND*4)+1
1020 IF A=1 THEN GOSUB 1500
1030 IF A=2 THEN GOSUB 1600
1040 IF A=3 THEN GOSUB 1700
1041 IF A=4 THEN GOSUB 1320
1042 SCROLL
1043 SCROLL
1050 RETURN
1100 SCROLL
1101 LET A=INT (RND*2)+1
1103 IF A=1 THEN PRINT "THERE AR
E NO TRAPS HERE."
1104 IF A=2 THEN GOSUB 1107
1105 PAUSE 80
1106 RETURN

```



```

1107 PRINT "YOU FIND ONE WHICH L
EADS TO"
1108 SCROLL
1110 PRINT "ANOTHER ROOM."
1111 PAUSE 80
1112 SCROLL
1114 SCROLL
1120 RETURN
1300 SCROLL
1310 RETURN
1315 SCROLL
1320 PRINT "THERE IS NOTHING HER
E."
1330 PAUSE 80
1340 RETURN
1400 SCROLL
1401 LET A=INT (RND*2)+1
1402 IF A=1 THEN PRINT "YOU REST
AND THEN MOVE ON."
1403 IF A=2 THEN GOSUB 1406
1404 PAUSE 80
1405 RETURN
1406 PRINT "WHILE RESTING A THIE
F COMES BY"
1407 SCROLL
1408 PRINT "AND TAKES YOUR GOLD
AND WEAPONS."
1409 LET G=G-G
1410 LET W=W-W
1411 PAUSE 80
1413 SCROLL
1414 SCROLL
1420 RETURN
1500 GOSUB 659
1501 SCROLL
1510 PRINT "YOU HAVE FOUND SOME
GOLD"
1511 PRINT AT 14,8;"██████████"
1512 PRINT AT 15,8;"██████████"
1513 PRINT AT 16,8;"██████████"
1514 PRINT AT 17,8;"██████████"
1515 PRINT AT 18,8;"██████████"
1516 PAUSE 100
1520 LET G=G+20
1530 LET S=S+10
1531 IF S>350 THEN GOTO 1800
1532 SCROLL
1534 SCROLL
1540 RETURN
1600 FAST
1610 CLS
1615 LET A=INT (RND*3)+1
1620 IF A=1 THEN LET M$="
WEREWO
LF"
1630 IF A=2 THEN LET M$="
VAMPIR
E"
1640 IF A=3 THEN LET M$="

```

```

1645 PRINT "YOU HAVE MET A ";M$
1648 PAUSE 80
1650 CLS
1651 SLOW
1655 PRINT "HAVE YOU A WEAPON ?"
1656 IF W=0 THEN GOTO 2115
1660 IF W<1 THEN GOTO 1660
1665 PRINT "YES"
1670 LET W=W-1
1675 PRINT "YOU HAVE KILLED IT"
1680 GOTO 510
1700 GOSUB 659
1701 SCROLL
1710 PRINT "YOU HAVE FOUND A WEA
PON"
1711 PRINT AT 9,14;"███"
1712 PRINT AT 10,14;"███"
1713 PRINT AT 11,14;"███"
1714 PRINT AT 12,14;"███"
1715 PRINT AT 13,14;"███"
1716 PRINT AT 14,14;"███"
1717 PRINT AT 15,14;"███"
1718 PRINT AT 16,14;"███"
1719 PRINT AT 17,14;"███"
1720 PRINT AT 18,14;"███"
1725 LET W=W+1
1730 LET S=S+10
1740 IF S>350 THEN GOTO 1800
1745 SCROLL
1750 SCROLL
1760 RETURN
1800 CLS
1820 PRINT AT 5,10;"YOU HAVE"
1830 PRINT AT 6,0;"██████████"
1840 PAUSE 100
1845 CLS
1850 PRINT AT 5,0;"WELL DONE YO
U HAVE FINALLY AND THANKFULLY ES
CAPED FROM THE HOUSE AND ITS
MONSTERS.";AT 8,0;"DURING YOUR
ESCAPE YOU TOOK £";G*5;"000 WO
RTH OF GOLD AND £";W*5;"000 WOR
TH OF WEAPONS."
1851 PRINT AT 14,0;"WOULD YOU LI
KE TO BECOME EVEN
RICHER?"
1855 PAUSE 9999
1860 IF INKEY$="N" THEN GOTO 190
0
1870 IF INKEY$="" THEN GOTO 1850
1875 IF INKEY$="Y" THEN GOTO 20
0
1900 CLS
1910 PRINT "A WISE DECISION."
1920 STOP
2000 CLS
2010 PRINT "GREEDY THING."
2012 PAUSE 50
2015 CLS
2020 GOTO 510
2100 CLS
2115 PRINT "BAD LUCK.YOU HAVE FA
ILED TO ESCAPE"
2120 STOP
2130 SAVE "ESCAPE"
2140 GOTO 1

```



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**FILESIXTY**



```

2 REM AWAIR
5 PAPER 5: INK 9: BORDER 1: C
LS
10 GO SUB 9000
20 GO SUB 5000
30 INPUT : FLASH 1: "Do you wis
h to go first (Y/N)"; x$
35 LET c=6: GO SUB 8000
40 IF x$="y" OR x$="Y" THEN GO
TO 200
50 GO SUB 210: GO TO 400
200 REM PRINT STATUS
205 GO SUB 210: GO TO 300
310 INK 9: BRIGHT 1
220 FOR J=1 TO 7
230 PRINT AT 7,((4*J)-3): " "
240 IF A(15-J)>0 THEN PRINT AT
7,((4*J)-3);A(15-J)
250 NEXT J
260 FOR J=1 TO 7
265 PRINT AT 14,(1+(4*J)): " "
270 IF A(J)>0 THEN PRINT AT 14,
(1+(4*J));A(J)
280 NEXT J
290 RETURN
300 LET h=0: FOR x=1 TO 6: LET
h=h+A(x): NEXT x: IF h=0 THEN LE
T c=1: GO SUB 1000: GO TO 400
305 IF z=6 THEN GO SUB 750: GO
TO 340
310 INPUT : FLASH 1: "Enter cup
number (1-6)"; c
320 PRINT AT 21,0: "You chose cu
p "; c
330 IF c=0 THEN RUN
334 IF C>6 OR C<1 THEN GO TO 30
0
340 GO SUB 1000
350 GO SUB 210
400 REM COMPUTER'S TURN
401 IF Z=1 OR z=6 THEN GO TO 70
0
402 IF Z=2 THEN GO TO 600
403 IF Z=3 THEN GO TO 400
404 IF Z=4 THEN GO TO 800
405 IF Z=5 THEN GO TO 900
406 REM MOVE LEVEL 3
409 FOR J=1 TO 6
410 IF A(14-J)>0 THEN GO TO 64
0
420 NEXT J
430 GO TO 460
440 LET C=14-J
445 PAUSE 50: PRINT AT 21,17: "S
pectrum cup "; FLASH 1; 7-J: PAUS
E 100: PRINT AT 21,0: " "
450 GO SUB 1000
460 LET T=0: FOR X=1 TO 6: LET
T=T+A(X): NEXT X: IF T=0 AND A(7
)>24 THEN CLS: PRINT AT 4,6: "A
WAIR I Level "; z: AT 10,7: FLA
SH 1: "YOU WIN "; A(7): " TO "; 40-A
(7): GO TO 500
461 LET T=0: FOR X=8 TO 13: LET
T=T+A(X): NEXT X: IF T=0 AND A(14
)>24 THEN CLS: PRINT AT 4,6: "
AWAIR I Level "; z: AT 10,8: F
LASH 1: "I WIN "; A(14): " TO "; 40-A
(14): GO TO 500
462 IF A(7)+A(14)=48 THEN CLS:
PRINT AT 4,6: "AWAIR I Level
"; z: AT 10,12: FLASH 1: "A DRAW":
GO TO 500
470 GO TO 200
499 STOP
500 INPUT : FLASH 1: "Press ENTE
R to play again."; x$: RUN
600 REM MOVE LEVEL 2
605 LET H=0
610 FOR J=1 TO 6
612 IF A(14-J)=J THEN GO TO 440
615 IF A(14-J)>H THEN LET H=A(1
4-J)
620 NEXT J
630 FOR J=1 TO 6
635 IF A(14-J)=H THEN GO TO 440
640 NEXT J

```



```

650 STOP
700 REM MOVE LEVEL 1
705 LET H=0
710 FOR J=1 TO 6
712 IF (A(14-J)+(14-J))>14 THE
N GO TO 440
715 IF A(14-J)>H THEN LET H=A(1
4-J)
720 NEXT J
730 FOR J=1 TO 6
735 IF A(14-J)=H THEN GO TO 440
740 NEXT J
745 STOP
750 REM AUTO move
760 FOR c=6 TO 1 STEP -1
762 IF A(c)+c>7 THEN GO TO 795
770 NEXT c
780 FOR c=1 TO 6
785 IF A(c)>0 THEN GO TO 795
790 NEXT c
795 PRINT AT 21,0: "You move cup
"; c: PAUSE 50
799 RETURN
800 REM MOVE LEVEL 4
810 LET J=INT (RND*6)+1
820 IF A(14-J)>0 THEN GO TO 44
0
830 LET h=0: FOR x=1 TO 6: LET
h=h+A(14-x): NEXT x
840 IF h>0 THEN GO TO 810
850 GO TO 440
900 REM LEVEL 5
910 LET J=C
920 GO TO 820
1000 REM MOVE USING CUP C
1001 IF A(C)=0 THEN RETURN
1005 GO SUB 8000

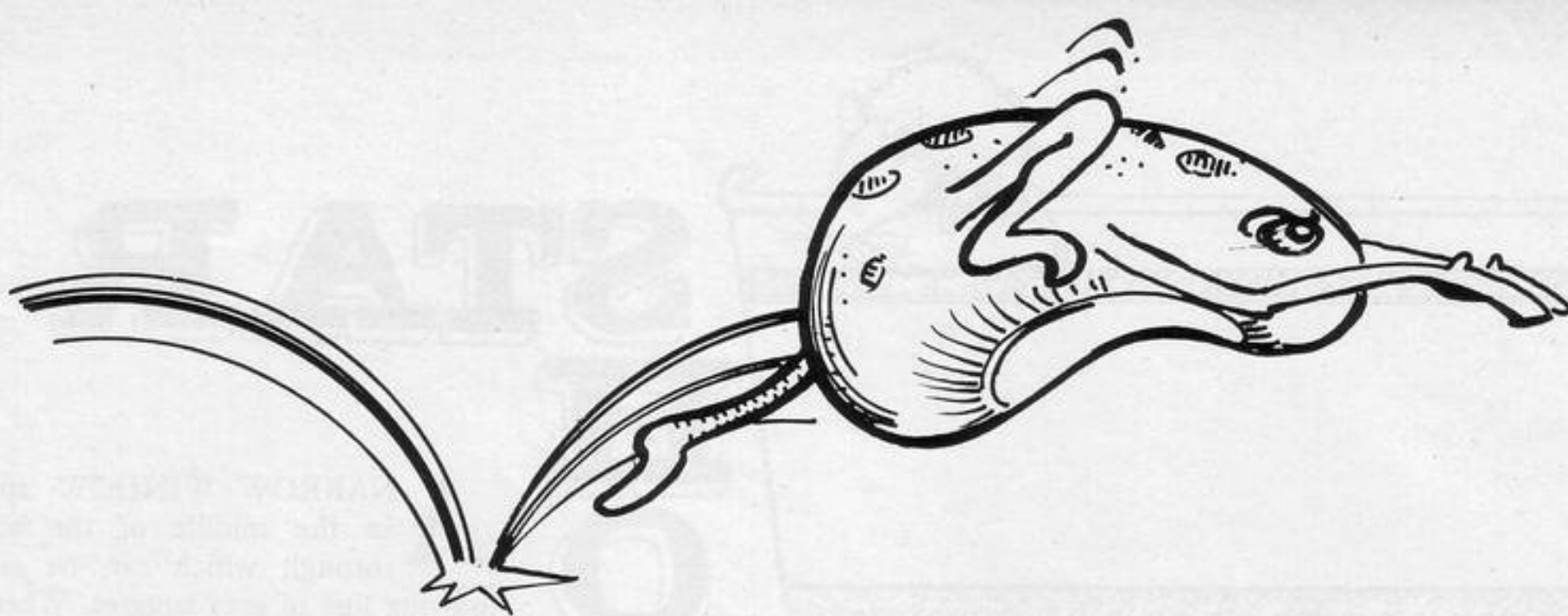
```

```

1010 FOR J=C+1 TO A(C)+C
1020 LET K=J
1030 IF J>14 THEN LET K=J-14
1040 LET A(K)=A(K)+1
1050 NEXT J
1060 LET A(C)=0
1070 IF NOT A(K)=1 OR NOT K=7 OR
NOT K=14 THEN RETURN
1080 LET A(K)=A(K)+A(14-K)
1090 LET A(14-K)=0
1100 RETURN
5000 REM PRINT BOARD
5005 CLS
5010 PRINT AT 1,5: "AWAIR I."
TAB 20: "LEVEL "; Z
5015 GO SUB 6000
5020 PRINT AT 4,1: INK 1: BRIGHT
1: "ST 6 5 4 3 2 1"
5030 LET a$="a da da da da
da da d"
5035 LET b$="b fb fb fb fb
fb fb f"
5040 LET c$="c _ec _ec _ec _ec _
ec _ec _e"
5050 PRINT AT 6,0: INK 7: BRIGHT
1: a$ AT 7,0: b$ AT 8,0: c$ AT 13,
4: a$ AT 14,4: b$ AT 15,4: c$
5060 PRINT AT 17,1: INK 1: BRIG
HT 1: "CUP 1 2 3 4 5 6
ST"
5090 DIM A(14)
5100 FOR J=1 TO 14
5110 IF J=7 OR J=14 THEN GO TO 5
120
5120 LET A(J)=4
5130 NEXT J
5999 RETURN
6000 REM set-up UDC

```





**T**HE AIM of **Awari** is to finish with more beans in your score cup than the computer has in its score cup. You each begin with four beans in each of your six cups and an empty score cup each.

Choose a cup and the teams in it will

be removed and distributed singly into the following cups. No bean can be removed from a score cup. Thus, if you choose bowl three initially it will be emptied and an extra bean will appear in bowl two, bowl one, your score bowl and the sixth computer bowl. Several

levels range from easy to extremely difficult, and include an option for a demonstration game.

This professional-quality program was written for the 16K Spectrum by Terry Hainsworth of Radcliffe-on-Trent, Nottinghamshire.

# AWARI



```

6010 FOR f=0 TO 6: FOR g=0 TO 7:
  READ a: POKE USR CHR# (144+f)+g
  a: NEXT g: NEXT f
6020 DATA 96,144,16,16,16,16,16,
16
6030 DATA 16,16,16,16,16,16,16,1
6
6040 DATA 16,16,16,16,16,16,8,7
6050 DATA 6,9,8,8,8,8,8,8
6060 DATA 8,8,8,8,8,8,16,224
6070 DATA 8,8,8,8,8,8,8,8
6080 DATA 0,0,0,0,0,0,0,255
6090 RETURN
8000 REM sound
8010 BEEP .1,(c*3)-4: BEEP .1,c*
3: BEEP .1,(c*3)+4
8020 RETURN
9000 REM LEVEL OF PLAY
9010 CLS
9020 PRINT AT 13,0: FLASH 1: "PLE
ASE ENTER LEVEL OF PLAY"

9030 PRINT AT 16,3: "1 = HARD"
9040 PRINT AT 17,3: "2 = EASY"
9050 PRINT AT 18,3: "3 = EVEN EAS
IER"
9055 PRINT AT 19,3: "4 = BEAT THE
MONKEY"
9057 PRINT AT 20,3: "5 = BEAT THE
ZOMBIE"
9058 PRINT AT 21,3: "6 = DEMONSTR
ATION"
9060 INPUT Z
9064 IF Z<1 OR Z>6 THEN GO TO 90
00
9068 LET c:= GO SUB 8000
9070 RETURN
9950 CLS
9960 CLEAR
9980 SAVE "AWARI" LINE 1
  
```

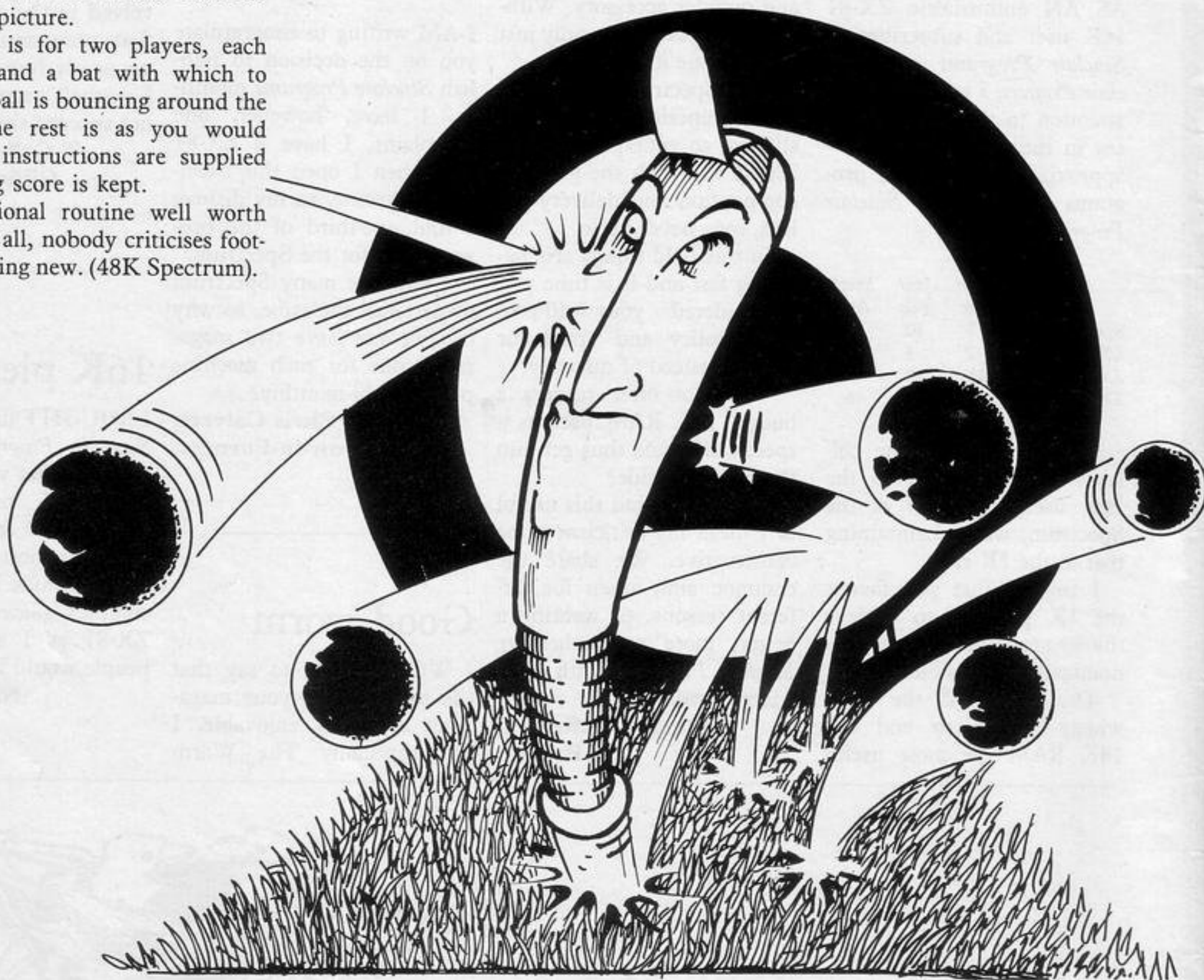


# PLING!

**P**LING is an old routine. Its author, Ken Rylett of Manchester, reports it as very similar to the first video game he played and we believe him. It is worth taping, since nobody criticises the Mona Lisa for being an old picture.

The game is for two players, each with a goal and a bat with which to defend it. A ball is bouncing around the court and the rest is as you would expect. Full instructions are supplied and a running score is kept.

A conventional routine well worth having. After all, nobody criticises football for not being new. (48K Spectrum).

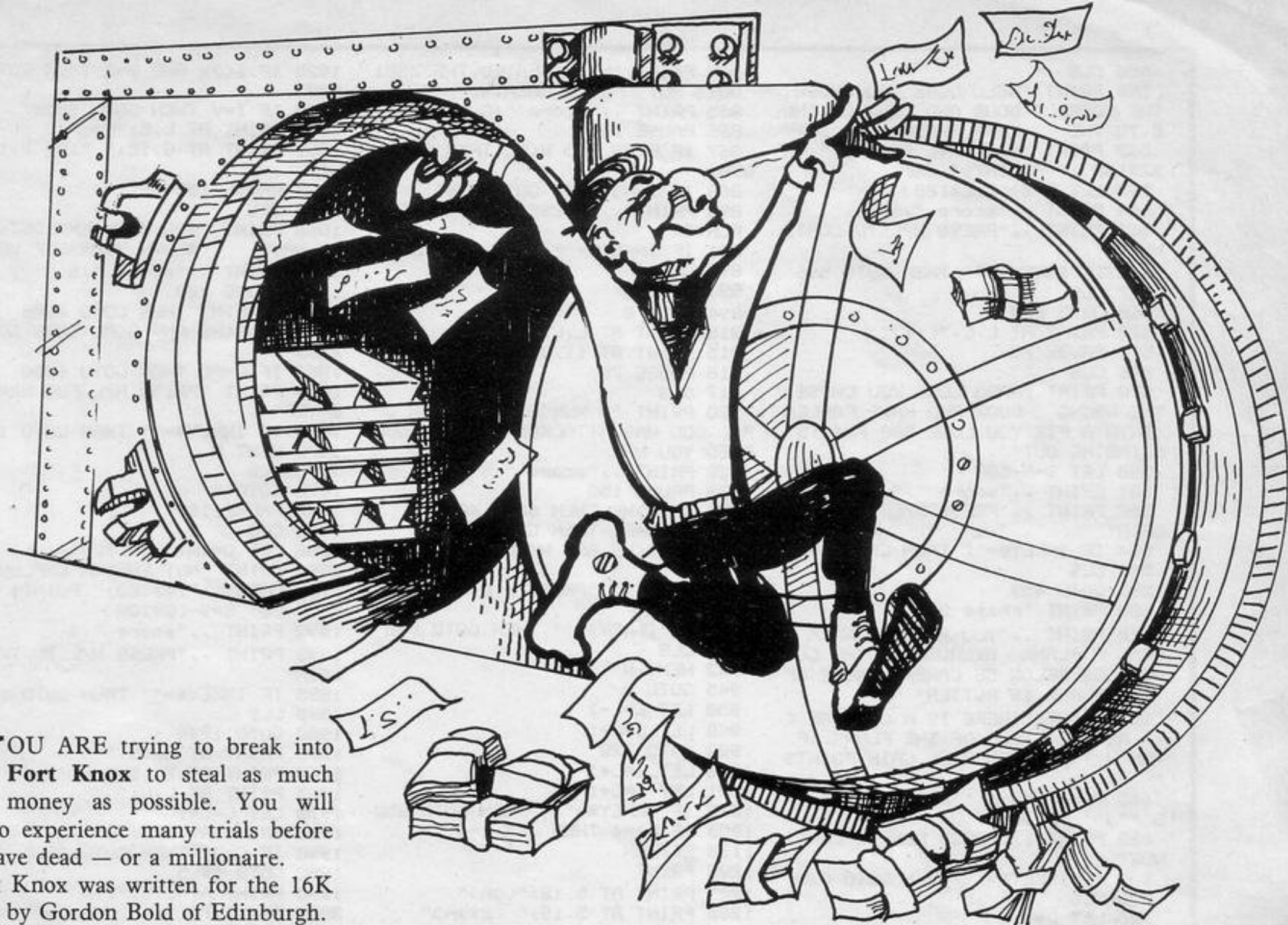


```
1000 REM      PLING-PLING
1010
1020 POKE 23658,8: GO SUB 9500:
30 SUB 9000
1030
2000 REM      SET BALL ROLLING
2010
2020 LET b=30: LET w=-1
2030 LET y=INT (RND*8+1)
2040 IF RND<.5 THEN LET y=y+12
2050 LET z=1
2060 IF RND<.5 THEN LET z=-z
2070 PRINT INK 1;AT y,b;"●"
2080 IF IN 63486=254 THEN GO SUB
3020: GO TO 2120
2090 IF IN 64510=254 THEN GO SUB
3030: GO TO 2120
2100 IF IN 61438=254 THEN GO SUB
3040: GO TO 2120
2110 IF IN 57342=254 THEN GO SUB
3050
2120 PRINT AT y,b;" "
2130 IF ATTA (y+z,b)=64 THEN LET
z=-z: BEEP .1,10
2140 IF ATTA (y+z,b+w)=64 THEN L
ET w=-w: BEEP .1,10
2150 LET y=y+z: LET b=b+w
2160 IF b=0 OR b=31 THEN GO TO 4
300
2170 GO TO 2070
3000 REM      MOVE BAT
3010
3020 IF lt>1 THEN PRINT AT lt,2;
" ";AT lb,2;" ": LET lt=lt-1: LE
T lb=lb-1: PRINT PAPER 0;AT lt,2
" ";AT lb,2;" ": RETURN
3030 IF lb<20 THEN PRINT AT lt,2
" ";AT lb,2;" ": LET lt=lt+1: L
```

```
ET lb=lb+1: PRINT PAPER 0;AT lt,
2;" ";AT lb,2;" ": RETURN
3040 IF rt>1 THEN PRINT AT rt,29
" ";AT rb,29;" ": LET rt=rt-1:
LET rb=rb-1: PRINT PAPER 0;AT rt
,29;" ";AT rb,29;" ": RETURN
3050 IF rb<20 THEN PRINT AT rt,2
9;" ";AT rb,29;" ": LET rt=rt+1:
LET rb=rb+1: PRINT PAPER 0;AT r
t,29;" ";AT rb,29;" ": RETURN
3060 RETURN
3070
3080
3090 IF b=0 THEN LET gr=gr+1: LE
T b=30: GO TO 4040
4030 LET gl=gl+1: LET b=1
4040 PRINT FLASH 1; BRIGHT 1; PA
PER 6, INK 0;AT 4,5;yl;AT 4,25;g
r: IF gl=5 OR gr=5 THEN GO TO 40
30
4050 FOR n=1 TO 500: NEXT n
4060 PRINT AT 4,5;" ";AT 4,25;"
4070 GO TO 2030
4080 PRINT FLASH 1;AT 10,5;"ANY
KEY TO PLAY AGAIN.": FOR n=1 TO
500: NEXT n
4090 IF INKEY$="" THEN GO TO 409
3
4100 PRINT AT 10,5;"
";AT 4,5;" ";AT 4,25;"
": LET gl=0: LET gr=0: GO TO 20
30
4110 REM      USE
3000 REM
3010
3020 FOR n=0 TO 7
3030 READ a: POKE USR "A"+n,a
3040 NEXT n
```

```
3050 DATA 60,126,255,255,255,255
,126,60
3060
3070 LET lt=10: LET lb=11
3080 LET rt=10: LET rb=11
3090 BORDER 2: PAPER 5: BRIGHT 1
: INK 0: CLS
3100 PRINT PAPER 0;AT lt,2;" "
3110 PRINT PAPER 0;AT lb,2;" "
3120 PRINT PAPER 0;AT rt,29;" "
3130 PRINT PAPER 0;AT rb,29;" "
3140 PRINT PAPER 0;AT 0,0;" ";AT
21,0;" "
3150 FOR n=1 TO 8
3160 PRINT PAPER 0;AT n,0;" ";AT
n+13,0;" ";AT n,31;" ";AT n+13,
31;" "
3170 NEXT n
3180 LET gl=0: LET gr=0
3190 RETURN
3200 REM      SUBROUTINE
3210 BORDER 1: PAPER 1: INK 0:
CLS
3220 PRINT PAPER 6; BRIGHT 1;AT
1,12;" PLING "
3230 PAPER 7
3240 PRINT AT 4,0;" This is a 2
player game. ";AT 10,0;" Left pl
ayer: - 1 for up ";AT 12,16;" 0
down";AT 16,0;" Right player
: - 0 for up ";AT 18,16;" P
own "
3250 INPUT "ENTER TO PLAY "; LIN
E A$: RETURN
```





**Y**OU ARE trying to break into Fort Knox to steal as much money as possible. You will have to experience many trials before you leave dead — or a millionaire.

Fort Knox was written for the 16K ZX-81 by Gordon Bold of Edinburgh.

# FORT KNOX

```

2 LET AG=0
3 LET HS=0
4 LET N$=""
5 GOSUB 5000
6 PRINT "HOW MANY PLAYERS?"
7 INPUT PL
8 LET S=0
9 FOR W=1 TO PL
10 PRINT "Player ";W
11 LET S=0
12 PAUSE 75
13 CLS
14 PRINT "fort knox 11"
15 PRINT AT 0,14;"high score="
;HS
17 PRINT AT 1,14;"name:- ";N$
18 PRINT AT 2,14;"age=";AG
22 PRINT AT 5,7;"INSTRUCTIONS?
(Y/N)"
23 INPUT I$
24 IF I$="N" THEN GOTO 100
25 IF I$="Y" THEN GOTO 30
30 PRINT AT 5,7;"instructions
"
33 PRINT "YOU ARE TRYING TO
BREAK INTO A SPECIAL BANK WHICH
CONTAINS OVER£100,000,000. YOU W
ILL HAVE TO "
34 PRINT "OVERCOME MANY DANGER
S ON YOUR WAY TO THE VAULT. DUR
ING THE GAME YOU GAIN AND LOSE PO
INTS."
35 PRINT "YOU ARE REPRESENTED
BY AN "0""
40 PRINT "IF YOU COMPLETE A TA
SK SUCCESSFULLY YOU WIL
L CHANGE TO AN (<10>). IF NOT YOU
WILL CHANGE TO AN (<1*>)."
80 PRINT "PRESS N/L TO CONTI
NUE"
90 IF INKEY$="" THEN GOTO 90
100 CLS
109 LET A=INT (RND*3)+1
110 PRINT "Phase 11"

120 PRINT "THERE ARE 3 PASSAGES
WHICH LEAD TO THE VAULT. 1 OF TH
E PASSAGES HAS AN ALARM"
140 PRINT "TYPE IN WHICH PASSAG
E (1 TO 3)"
150 INPUT C
170 PRINT
180 PRINT AT 7,0;"(0*99:1SP:SP:
1SP:2*99:1SP:SP:1SP:2*99:1SP:SP:
1SP:11*99)"
182 FOR F=1 TO 7
184 PRINT "(0*9h:1SP:SP:1SP:2*9
h:1SP:SP:1SP:2*9h:1SP:SP:1SP:11*
9h)"
185 NEXT F
186 PRINT AT 15,0;"(0*9f:1SP:SP
:1SP:2*9f:1SP:SP:1SP:2*9f:1SP:SP
:1SP:11*9f)"
190 IF C=1 THEN LET Y=9
200 IF C=2 THEN LET Y=14
210 IF C=3 THEN LET Y=19
220 LET X=6
230 PRINT AT X,Y;" "
240 LET X=X+1
250 IF X=15 THEN GOTO 300
255 IF X=10 AND C=A THEN GOTO 3
50
260 PRINT AT X,Y;"0"
270 GOTO 230
300 PRINT AT X,Y;"(<10>)"
302 PAUSE 75
305 CLS
306 LET Q=INT (RND*30)+10
308 PRINT "YOU HAVE ELUDED THE
ALARM AND "
310 PRINT "HAVE GAINED ";Q*100
;" POINTS"
330 GOTO 400
350 PRINT AT X,Y;"(<1*>)"
352 PAUSE 75
354 CLS
355 PRINT "YOU HAVE BEEN ARREST
ED BY A"
360 PRINT "POLICEMAN. YOU LOSE 5

00 POINTS AFTER BRIBING HIM"
365 LET S=S-500
368 PRINT "score ";S
370 PRINT "PRESS N/L TO TRY A
GAIN"
380 IF INKEY$="" THEN GOTO 380
390 GOTO 105
400 LET S=S+(Q*100)
405 PRINT "score ";S
410 PRINT "PRESS N/L TO CONTI
NUE"
420 IF INKEY$="" THEN GOTO 420
430 CLS
440 PRINT "phase 2"
450 LET Z=INT (RND*6)+1
455 PRINT "YOU HAVE FOUND A K
EY AND MUST PUT IT INTO 1 OF T
HE DOORS (<1d>). USE THE CURSOR
KEYS TO MOVE AROUND"
456 PRINT "PRESS N/L TO CONTI
NUE"
457 IF INKEY$="" THEN GOTO 457
458 CLS
459 LET L=6
460 LET C=4
461 LET X=INT (RND*5)
462 LET Y=INT (RND*5)
464 PRINT AT X,Y;"(<1d>)"
470 LET A=INT (RND*5)
472 LET B=INT (RND*5)
474 PRINT AT A,B;"(<1d>)"
475 PRINT AT L,C;" "
477 LET L=L+(INKEY$="6")-(INKEY
$="7")
478 LET C=C+(INKEY$="8")-(INKEY
$="5")
480 IF L=X AND C=Y THEN GOTO 55
0
485 IF L=A AND C=B THEN GOTO 57
0
490 PRINT AT L,C;"0"
500 GOTO 475
550 PRINT AT L,C;"(<10>)"
555 PAUSE 75

```



```

556 CLS
560 PRINT "WELL DONE YOU CHOSE
THE CORRECT DOOR AND CAN CONTINU
E TO THE NEXT PHASE"
562 PRINT "YOU HAVE SCORED "<Z
*2*100> POINTS"
563 LET S=S+(Z*2*100)
564 PRINT "score ";S
565 PRINT "PRESS N/L TO CONTI
NUE"
566 IF INKEY$="" THEN GOTO 566
567 CLS
568 GOTO 600
570 PRINT AT L,C;"(i*)"
575 PAUSE 75
576 CLS
578 PRINT "HARD LUCK YOU CHOSE
THE WRONG DOOR AND HAVE FALLEN
INTO A PIT YOU LOSE 500 POINTS
CLIMBING OUT"
580 LET S=S-500
581 PRINT "score ";S
582 PRINT "PRESS N/L TO TRY A
GAIN"
584 IF INKEY$="" THEN GOTO 584
586 CLS
590 GOTO 459
600 PRINT "Phase 3"
610 PRINT "YOU HAVE TO WALK A
LONG A PLANK BECAUSE OF THE GUAR
D DOGS BELOW BE CAREFUL SOME OF
THE PLANK IS ROTTEN"
612 PRINT "THERE IS A CROWBAR (<
+>) AT THE END OF THE PLANK. IF
YOU HIT IT YOU WILL GAIN POINTS"
615 PRINT "USE ""W"" TO WALK AN
D ""J"" TO JUMP"
620 PRINT "PRESS N/L TO CONTI
NUE"
630 IF INKEY$="" THEN GOTO 630
640 CLS
700 LET L=4
705 LET C=0
710 PRINT AT 5,0;"(97:2*SP:2*97
:SP:97:SP:2*97:4*SP:97:2*SP:2*97
)"
712 PRINT AT 12,0;"(19*9a)"
715 PRINT AT 4,17;"+"
720 PRINT AT L,C;" "
730 IF INKEY$="W" THEN LET C=C+
1
735 IF L=4 AND C=1 OR L=4 AND C
=2 OR L=4 AND C=5 OR L=4 AND C=7
OR L=4 AND C=10 OR L=4 AND C=11
OR L=4 AND C=12 OR L=4 AND C=13
OR L=4 AND C=15 OR L=4 AND C=16
THEN GOSUB 900
737 IF INKEY$="J" AND L=L+1 AND
C=C+1 THEN GOTO 850
740 IF INKEY$="J" THEN GOSUB 95
0
745 IF INKEY$("<"J") AND L<4 THEN
GOSUB 1000
747 IF INKEY$="J" AND L=L+1 AND
C=C+1 THEN GOTO 850
750 PRINT AT L,C;"0"
760 IF L=4 AND C=18 THEN GOTO 1
200
765 IF C>19 THEN GOTO 802
766 IF C>=18 AND L<>4 THEN GOTO
802
770 IF C=19 AND L=4 THEN GOTO 1
500
775 LET Z=INT (RND*20)+1
780 IF L=4 AND C=17 THEN LET S=
S+(Z*20)
800 GOTO 720
802 PRINT AT L,C;"(i*)"
803 PAUSE 100
804 CLS
805 PRINT "YOU HAVE JUMPED OUT
OF THE BANK"
810 PRINT "YOU LOSE 1000 POINTS"
812 LET S=S-1000
814 PRINT "score ";S
815 PRINT "PRESS N/L TO TRY A
GAIN."
820 IF INKEY$="" THEN GOTO 820
825 CLS
830 GOTO 700
850 PRINT AT L,C;"(i*)"
855 PAUSE 75
860 CLS
862 PRINT "YOU CHEATED. THE ZX81
DOES NOT LIKE CHEATS."
865 PRINT "score ";S
866 PAUSE 120
867 IF S<HS AND W<PL THEN GOTO
890
868 IF S>HS THEN GOTO 4005
890 PRINT "PRESS N/L FOR NEXT
PLAYER"
891 IF INKEY$="" THEN GOTO 891
892 CLS
893 NEXT W
894 GOTO 8
910 PRINT AT L,C;" "
915 PRINT AT 11,C;"(i*)"
916 PAUSE 75
917 CLS
920 PRINT "A HUNGRY ALSATIAN GU
ARD DOG HAS ATTACKED YOU AND GOB
BLED YOU UP"
922 PRINT "score ";S
923 PAUSE 150
925 IF S>HS THEN GOTO 4005
926 IF W=PL THEN GOTO 6000
930 IF S<HS AND W<PL THEN GOTO
934
934 PRINT "PRESS N/L FOR NEXT
PLAYER"
935 IF INKEY$="" THEN GOTO 935
940 CLS
942 NEXT W
945 GOTO 8
950 LET L=L-1
960 LET C=C+1
980 GOTO 720
1000 LET L=L+1
1001 LET C=C+1
1002 IF INKEY$="J" THEN GOTO 850
1005 IF L>=4 THEN LET L=4
1130 RETURN
1200 PRINT
1205 PRINT AT 5,18;"(9h)"
1206 PRINT AT 5,19;"(8*9h)"
1210 PRINT AT 6,18;"(9h) (8*9h)"
1220 PRINT AT 7,18;"(9h) (8*9h)"
1230 PRINT AT 8,18;"(9h) (8*9h)"
1240 PRINT AT 9,18;"(9h) (8*9h)"
1250 PRINT AT 10,18;"(9f)"
1260 PRINT AT 11,18;"(9f)"
1270 PRINT AT 12,18;"(10*9f)"
1280 GOTO 720
1500 PRINT AT 4,19;" "
1505 LET L=11
1506 LET C=19
1510 PRINT AT L,C;" "
1511 LET C=C+1
1512 IF C=27 THEN GOTO 1515
1513 PRINT AT L,C;"0"
1514 GOTO 1507
1515 PRINT AT L,C;"(10)"
1520 PAUSE 150
1530 CLS
1535 LET X=INT (RND*100)+1
1540 PRINT "WELL DONE YOU HAVE G
AINED ";X*100; " POINTS FOR FIND
ING THE CORRIDOR"
1550 LET S=S+(X*100)
1560 PRINT "score ";S
1600 PRINT "PRESS N/L TO CONTI
NUE"
1610 IF INKEY$="" THEN GOTO 1610
1620 CLS
1700 PRINT "Phase 4"
1720 PRINT "THERE IS A STEEL D
OOR IN THE CORRIDOR YOU MUST
INPUT THE AMOUNT OF EXPLOSIV
ES TO BE USED"
1725 PRINT "(1 OR 2) TONS."
1730 PRINT "PRESS N/L TO CONTI
NUE"
1735 IF INKEY$="" THEN GOTO 1735
1740 CLS
1745 PRINT AT 5,0;"(32*9h)"
1750 PRINT AT 8,0;"(32*9h)"
1755 LET L=7
1756 LET C=14
1760 PRINT AT L,C;"0"
1770 PRINT AT 6,15;"(1SP)"
1780 PRINT AT 7,15;"(1SP)"
1800 LET V=INT (RND*2)+1
1810 INPUT I
1820 IF I<>V AND V=1 THEN GOTO 1
850
1825 IF I<>V AND V=2 THEN GOTO 1
880
1840 IF I=V THEN GOTO 1950
1850 PRINT AT L,C;"(i*)"
1851 PRINT AT 6,15;" " AT 7,15;" "
1855 PAUSE 100
1858 CLS
1860 PRINT "TOO MUCH EXPLOSIVE. Y
OU HAVE BLOWN YOURSELF UP"
1862 PRINT "score ";S
1863 PAUSE 120
1865 IF S>HS THEN GOTO 4005
1866 IF S<HS AND W<PL THEN GOTO
1869
1867 IF W=PL THEN GOTO 6000
1869 PRINT "PRESS N/L FOR NEXT P
LAYER"
1870 IF INKEY$="" THEN GOTO 1870
1872 NEXT W
1875 CLS
1878 GOTO 8
1880 PAUSE 100
1885 CLS
1886 LET Q=INT (RND*20)+1
1888 PRINT "NOT ENOUGH EXPLOSIVE
YOU LOSE ";Q*100; " POINTS"
1889 LET S=S-(Q*100)
1890 PRINT "score ";S
1893 PRINT "PRESS N/L TO TRY A
GAIN"
1895 IF INKEY$="" THEN GOTO 1895
1898 CLS
1900 GOTO 1740
1950 PRINT AT 6,15;" "
1960 PRINT AT 7,15;" "
1965 PRINT AT L,C;" "
1970 LET C=C+1
1980 PRINT AT L,C;"0"
1990 IF C=31 THEN GOTO 1995
1992 GOTO 1965
1995 PRINT AT L,C;"(10)"
2000 PAUSE 75
2005 CLS
2010 PRINT "WELL DONE YOU HAVE G
OT THROUGH THE STEEL DOOR AND H
AVE GAINED 2000 POINTS"
2015 LET S=S+2000
2020 PRINT "score ";S
2030 PRINT "PRESS N/L TO CONTI
NUE"
2040 IF INKEY$="" THEN GOTO 2040
2050 CLS
2100 PRINT "Phase 5"
2110 PRINT "YOU ARE IN A LARGE
ROOM AND THE FLOOR WILL BECOME
ELECTRIFIED"
2120 PRINT "AFTER 100 SECONDS YO
U MUST FIND THE HIDDEN SWITCH BE
FORE"
2130 PRINT "YOUR TIME RUNS OUT"
2132 PRINT "IF YOU TURN IT OFF I
N TIME A CORRIDOR IS PRINTED"
2133 PRINT "IF YOUR TIME RUNS OU
T THE SWITCH IS PRINTED"
2135 PRINT "USE THE CURSOR KEYS
TO MOVE AROUND"
2140 PRINT "PRESS N/L TO CONTI
NUE"
2150 IF INKEY$="" THEN GOTO 2150
2160 CLS
2175 LET T=100
2194 LET L=7
2196 LET C=0
2200 PRINT AT 5,0;"(7*9h:10*SP:9
h)"
2210 PRINT AT 8,0;"(7*9h:10*SP:9
h)"
2220 PRINT AT 4,6;"(9h:10*SP:9h)"
2230 PRINT AT 3,6;"(9h:10*SP:9h)"
2235 PRINT AT 6,6;"(11*SP:9h)"
2240 PRINT AT 2,6;"(9h:10*SP:9h)"
2245 PRINT AT 7,6;"(11*SP:9h)"
2250 PRINT AT 1,6;"(9h:10*SP:9h)"
2260 PRINT AT 0,6;"(12*9h)"
2270 PRINT AT 9,6;"(9h:10*SP:9h)"
2280 PRINT AT 10,6;"(9h:10*SP:9h)"
2290 PRINT AT 11,6;"(9h:10*SP:9h)"

```



```

2300 PRINT AT 12,6;"(9h:10*SP:9h)"
2310 PRINT AT 13,6;"(9h:10*SP:9h)"
2320 PRINT AT 14,6;"(12*9h)"
2325 LET X=INT (RND*12)+1
2326 LET Y=INT (RND*9)+7
2330 PRINT AT L,C;" "
2333 PRINT AT X,Y;"="
2335 LET T=T-1
2340 LET L=L+(INKEY#="6")-(INKEY#="7")
2350 LET C=C+(INKEY#="8")-(INKEY#="5")
2355 IF L<=0 THEN LET L=1
2356 IF L>=14 THEN LET L=13
2357 IF C>=17 THEN LET C=16
2358 IF L<>7 AND C<=6 THEN LET C=7
2360 IF L=X AND C=Y THEN GOTO 2500
2365 IF C>6 THEN PRINT AT 6,6;"(9h)" AT 7,6;"(9h)"
2370 IF T=-1 THEN GOTO 2600
2380 PRINT AT L,C;"0"
2390 PRINT AT 0,22;"time ";T;" "
2400 GOTO 2330
2500 PRINT AT L,C;" "
2501 PRINT AT 14,8;" "
2502 PRINT AT 15,7;"(9h:3*SP:9h)"
2503 PRINT AT 16,7;"(9h:3*SP:9h)"
2504 PRINT AT 17,7;"(9h:3*SP:9h)"
2505 PRINT AT 18,7;"(9h:3*SP:9h)"
2506 PRINT AT 19,7;"(9h:3*SP:9h)"
2507 PRINT AT 20,7;"(9h:3*SP:9h)"
2508 LET L=15
2509 LET C=9
2510 PRINT AT L,C;" "
2511 LET L=L+1
2512 IF L=20 THEN GOTO 2515
2513 PRINT AT L,C;"0"
2514 GOTO 2510
2515 PRINT AT L,C;"(10)"
2519 PAUSE 120
2520 CLS
2530 PRINT "YOU TURNED OFF THE SWITCH IN TIME.YOU SCORED ";T*100;" POINTS"
2535 LET S=S+(T*100)
2540 PRINT "score ";S
2550 PRINT "PRESS N/L TO CONTINUE"
2560 IF INKEY#="" THEN GOTO 2560
2565 CLS
2570 GOTO 2700
2600 PRINT AT L,C;"(1*)"
2605 PRINT AT X,Y;"="
2610 PAUSE 100
2620 CLS
2630 PRINT "YOU HAVE BEEN ELECTRIFIED."
2640 PRINT "score ";S
2642 PAUSE 120
2645 IF S>HS THEN GOSUB 4005
2650 IF S<HS AND WKPL THEN GOTO 2659
2659 IF W=PL THEN GOTO 6000
2659 PRINT "PRESS N/L FOR NEXT PLAYER"
2660 IF INKEY#="" THEN GOTO 2660
2670 CLS
2672 NEXT W
2680 GOTO 8
2700 PRINT "Phase 6"
2710 PRINT "YOU HAVE FINALLY REACHED THE VAULT.THE COMBINATION WILL BE PRINTED FOR A FEW"
2720 PRINT "SECONDS.YOU MUST REMEMBER IT ANDTYPE IT IN WHEN YOU ARE TOLD"
2725 PRINT "IF YOU INPUT THE WRONG COMBINATION THE CORRECT ONE WILLBE PRINTED"
2730 PRINT "GOOD LUCK."
2740 PRINT "PRESS N/L TO CONTINUE"
2750 IF INKEY#="" THEN GOTO 2750
2760 CLS
2770 LET L=15
2780 LET C=9
2790 PRINT AT L,C;" "
2800 PRINT AT 10,6;"(9h:5*SP:9h)"
2801 PRINT AT 11,6;"(9h:5*SP:9h)"
2802 PRINT AT 12,6;"(9h:5*SP:9h)"
2803 PRINT AT 13,6;"(9h:5*SP:9h)"
2804 PRINT AT 14,6;"(9h:5*SP:9h)"
2805 PRINT AT 15,6;"(9h:5*SP:9h)"
2810 PRINT AT 16,6;"(9h:5*SP:9h)"
2811 PRINT AT 17,6;"(9h:5*SP:9h)"
2812 PRINT AT 18,6;"(9h:5*SP:9h)"
2813 PRINT AT 19,6;"(9h:5*SP:9h)"
2814 PRINT AT 20,6;"(9h:5*SP:9h)"
2820 PRINT AT L,C;"0"
3000 LET M=INT (RND*21000)+10000
3010 PRINT AT 17,7;"M"
3020 PAUSE 25
3025 PRINT AT 17,7;" "
3027 PRINT AT 0,0;"TYPE IN COMBINATION"
3028 PAUSE 75
3029 PRINT AT 0,0;" "
3030 INPUT T
3040 IF T=M THEN GOTO 3500
3050 IF T<>M THEN GOTO 3750
3500 PRINT AT 16,8;" "
3510 PRINT AT L,C;" "
3520 LET L=L+1
3530 IF L=20 THEN GOTO 3545
3535 PRINT AT L,C;"0"
3540 GOTO 3510
3545 PRINT AT L,C;"(10)"
3546 PAUSE 100
3550 CLS
3551 FOR F=1 TO 21
3552 PRINT "(32*10)"
3553 NEXT F
3554 PAUSE 100
3555 CLS
3558 LET K=INT (RND*500)+100
3560 PRINT "WELL DONE.YOU HAVE OPENED THE VAULT AND ARE A VERY RICH PERSON"
3565 PRINT "YOU SCORED ";K*100;" POINTS"
3570 LET S=S+(K*100)
3575 PRINT "score ";S
3578 PAUSE 100
3580 IF S>HS THEN GOTO 4005
3585 IF S<HS THEN PRINT "PRESS N/L FOR ANOTHER GO."
3590 IF INKEY#="" THEN GOTO 3590
3595 CLS
3600 GOTO 5
3750 PRINT AT L,C;"(1*)"
3770 PRINT AT 15,7;"=" AT 15,10;"<="
3780 PRINT AT 17,7;"M"
3790 PAUSE 150
3800 CLS
3810 PRINT "YOU HAVE BEEN STABBED BY TWO PIKES.WHAT A PITY YOU WERE"
3820 PRINT "SO CLOSE TO THE £100,000,000."
3830 PRINT "NEVER MIND."
3840 PRINT "score ";S
3841 PAUSE 150
3842 IF S<HS AND WKPL THEN GOTO 3850
3844 IF S>HS THEN GOTO 4005
3846 IF W=PL THEN GOTO 6000
3850 PRINT "PRESS N/L FOR NEXT PLAYER"
3860 IF INKEY#="" THEN GOTO 3860
3870 CLS
3872 NEXT W
3880 GOTO 8
4005 CLS
4006 IF S>HS THEN LET HS=S
4008 PRINT "YOU HAVE THE HIGH SCORE"
4010 PRINT "INPUT NAME (1 TO 12 LETTERS)"
4015 INPUT N#
4020 IF LEN N#>12 THEN GOTO 4005
4025 IF LEN N#<=12 THEN GOTO 4026
4026 PRINT "N#"
4027 PRINT "INPUT AGE"
4028 INPUT AG
4029 PRINT "AG"
4031 PRINT "OK? (Y/N)"
4032 PAUSE 20
4033 INPUT I#
4034 IF I#="Y" THEN GOTO 4036
4035 IF I#="N" THEN GOTO 4005
4036 IF WKPL THEN GOTO 4040
4037 IF W=PL THEN GOTO 6000
4040 PRINT "PRESS N/L FOR NEXT PLAYER"
4045 IF INKEY#="" THEN GOTO 4045
4050 CLS
4052 NEXT W
4055 GOTO 8
5000 PRINT AT 0,4;"(4*1SP:3*SP:4*1SP:3*SP:4*1SP:3*SP:3*1SP)"
5010 PRINT AT 1,4;"(1SP:6*SP:1SP:2*SP:1SP:3*SP:1SP:2*SP:1SP:4*SP:1SP)"
5020 PRINT AT 2,4;"(2*1SP:5*SP:1SP:2*SP:1SP:3*SP:4*1SP:4*SP:1SP)"
5030 PRINT AT 3,4;"(1SP:6*SP:1SP:2*SP:1SP:3*SP:1SP:1SP:1SP:5*SP:1SP)"
5040 PRINT AT 4,4;"(1SP:6*SP:4*1SP:3*SP:1SP:1SP:1SP:5*SP:1SP)"
5050 PRINT AT 7,2;"(1SP:2*SP:1SP:4*SP:1SP:3*SP:1SP:3*SP:4*1SP:3*SP:1SP:3*SP:1SP)"
5060 PRINT AT 8,2;"(1SP:1SP:1SP:5*SP:2*1SP:2*SP:1SP:3*SP:1SP:2*SP:1SP:4*SP:1SP:1SP)"
5070 PRINT AT 9,2;"(2*1SP:6*SP:1SP:1SP:1SP:1SP:3*SP:1SP:2*SP:1SP:5*SP:1SP)"
5080 PRINT AT 10,2;"(1SP:1SP:1SP:5*SP:1SP:2*SP:2*1SP:3*SP:1SP:2*SP:1SP:4*SP:1SP:1SP)"
5090 PRINT AT 11,2;"(1SP:2*SP:1SP:4*SP:1SP:3*SP:1SP:3*SP:4*1SP:3*SP:1SP:3*SP:1SP)"
5100 PRINT AT 14,9;"(3*1SP:2*SP:3*1SP)"
5101 PRINT AT 15,9;"(1SP:1SP:4*SP:1SP)"
5102 PRINT AT 16,9;"(1SP:1SP:4*SP:1SP)"
5103 PRINT AT 17,9;"(1SP:1SP:4*SP:1SP)"
5104 PRINT AT 18,9;"(3*1SP:2*SP:3*1SP)"
5106 FOR F=1 TO 3
5107 PRINT "BULDIE SOFT WARE"
5108 NEXT F
5109 PAUSE 150
5110 CLS
5150 RETURN
6000 CLS
6010 PRINT "WELL DONE ";N#
6011 PRINT "YOU SCORED THE MOST POINTS AND HAVE WON THE GAME."
6012 PRINT "YOU SCORED ";HS
6020 PRINT "PRESS N/L TO HAVE ANOTHER GO"
6030 IF INKEY#="" THEN GOTO 6030
6040 CLS
6050 GOTO 5

```



```

1 REM "DRIVER" by COLIN BIRD
3 PAPER 0: BORDER 0: INK 7
4 LET 1=2: GO SUB 390: GO SUB
300
5 LET r$="bb"      bb"
6 LET a=0
7 LET s=0
10 FOR n=0 TO 20: PRINT "(32*1
98)" : NEXT n: PRINT "bbbbbb(10*1
98)bbbbbbbbbbbbbbbbbb"
20 LET r1=5
30 FOR q=0 TO 300
40 LET s=s+1
50 IF RND>.2 THEN PRINT AT INT
20,INT (RND*30): INK 7: INVERSE
1:"h"
60 IF RND>.9 THEN PRINT AT INT
20,r1+INT (RND*4): INK 6: INVER
SE 1:"c"
70 IF q=100 THEN BEEP .1,1: BE
EP .1,2: BEEP .1,3: BEEP .1,1: I
NK 6: LET r$="bb"      bb"
80 IF q=250 THEN BEEP .1,1: BE
EP .1,2: BEEP .1,3: BEEP .1,10:
INK 5: LET r$="bb"      bb"
90 IF q=400 THEN BEEP .1,-10:
BEEP .1,-8: BEEP .1,-6: BEEP .1,
-10: INK 6: LET r$="bb"      bb"
100 IF q=550 THEN BEEP .1,0: BE
EP .1,-10: BEEP .1,0: BEEP .1,-1
0: INK 5: LET r$="bb"      bb"
110 IF q=700 THEN BEEP .1,0: BE
EP .1,10: BEEP .1,-10: BEEP .1,-
10: INK 5: LET r$="bb"      bb"
120 LET a=a+(INKEY$="0")-(INKEY
$="8")
130 BEEP .002,0: BEEP .002,1
140 POKE 23692,255
150 PRINT AT 21,31:" "
160 IF r1>-10 THEN LET r1=10
170 IF r1<=1 THEN LET r1=1
180 PRINT AT 21,r1: PAPER 2: IN
VERSE 1:r$
190 PRINT AT 9,a: INVERSE 1:"a"
200 LET r1=r1+INT (RND*3): LET
r1=r1-INT (RND*3)
210 IF ATTR (10,a)=6 THEN BEEP
.2,10: BEEP .1,-10: BEEP .1,0: L
ET s=s+30: PRINT AT 10,a:"■"
220 IF SCREEN$ (10,a)<>" " THEN
GO SUB 250
230 NEXT q: CLS: FOR n=0 TO 10
: BEEP .1,INT (RND*60): NEXT n:
GO TO 10
240 STOP
250 LET l=1-1: FOR n=0 TO 5: BE
EP .2,-10: PRINT AT 10,a: FLASH
1:"b": BEEP .2,-1: PRINT AT 10,a
: FLASH 1:"a": NEXT n
260 IF l>1 THEN GO SUB 290: NEX
T q
270 IF l<=0 THEN CLS: BEEP .01
,-10: PRINT AT 10,10:"NO LIVES L
eft": AT 15,10:"SCORE=" :s: PRINT
AT 21,0: FLASH 1:"ANY KEY TO CO
NTINUE": IF INKEY$="" THEN PAUSE
0: PAUSE 10: RUN
280 LET r1=5: INK 7: FOR n=0 TO
20: PRINT "(32*198)" : NEXT n: P
RINT "bbbbbb(10*198)bbbbbbbbbbbbbb
bbbb"
290 RETURN
300 FOR f=0 TO 1
310 FOR n=4 TO 7: INK n
320 BEEP .02,n+n
330 PRINT AT 0,13:"DRIVER": AT 1
,12:"ccccccc"
340 PRINT "" You must drive a
long the road for as long as p
ossible without hitting the rock
s (h),and also collecting the b
ags of money for extra points
"
350 PRINT "" You have only 2 li
ves"
360 PRINT "" FLASH 1:"KEYS": FL
ASH 0:" '8' is left," " '0' is r
ight."
370 NEXT n: NEXT f
380 PRINT AT 21,10: FLASH 1:"AN

```



# DRIVER

```

Y KEY TO START": IF INKEY$="" TH
EN GO TO 390
385 CLS: RETURN
390 FOR q=1 TO 3: READ a$: FOR
n=0 TO 7: READ a: POKE 23692,n,
a: NEXT n: NEXT q
400 CLS: RETURN
410 DATA "a",44,118,239,247,239
,247,119,52,"b",14,126,94,137,25
3,127,90,60,"c",126,60,102,219,1
43,223,195,126
420 CLS: PRINT AT 10,10: FLASH
1:"STOP THE TAPE": PAUSE 200: R
UN
500 SAVE "DRIVER" LINE 420

```

**M**OVE YOUR CAR along the road, steering left with 8 and right with 0. Do not crash into the side of the road or you will lose one of your two lives. Run over bags of money to gain extra points. A change in the colour of the road will be heralded by a small bleeping sound and each time the road colour changes it will also become narrower.

**Driver** was written for the 16K Spectrum by Colin Bird of Blackpool, Lancashire.





**C**ONSTELLATIONS is an educational program for the 16K ZX-81. It will display any one of six constellations on the screen and could be modified to include many more. It was written by Zoe O'Sullivan of north London. All asterisks in the program should be entered in the inverse mode.

```

10 PRINT "SOME STAR MAPS"
20 PRINT
30 PRINT "1=THE PLOUGH"
31 PRINT "2=CASSIOPEIA"
32 PRINT "3=URSA MINOR"
33 PRINT "4=CEPHEUS"
34 PRINT "5=BOOTES"
35 PRINT "6=LEO"
40 INPUT A
45 PAUSE 150
46 CLS
50 IF A=1 THEN GOTO 60
51 IF A=2 THEN GOTO 100
52 IF A=3 THEN GOTO 140
53 IF A=4 THEN GOTO 180
54 IF A=5 THEN GOTO 220
55 IF A=6 THEN GOTO 260
60 GOSUB 1000
70 PRINT AT 13,6;"*";AT 10,10;
"*";AT 10,13;"*";AT 10,18;"*";AT
13,21;"*";AT 10,28;"*";AT 6,28;
"*"
80 PRINT TAB 1;"THE PLOUGH"
90 STOP
100 GOSUB 1000
110 PRINT AT 4,10;"*";AT 8,11;"
*";AT 9,14;"*";AT 13,15;"*";AT 1
2,19;"*"
120 PRINT TAB 1;"CASSIOPEIA"
130 STOP
140 GOSUB 1000
150 PRINT AT 15,9;"*";AT 15,12;
"*";AT 11,12;"*";AT 10,18;"*";AT
7,15;"*";AT 5,17;"*";AT 4,20;"*
"
160 PRINT TAB 1;"URSA MINOR"
170 STOP
180 GOSUB 1000
190 PRINT AT 2,8;"*";AT 12,14;"
*";AT 4,17;"*";AT 8,22;"*";AT 11
,21;"*";AT 14,20;"*";AT 15,20;"*
";AT 15,19;"*"
200 PRINT TAB 1;"CEPHEUS"
210 STOP
220 GOSUB 1000
230 PRINT AT 3,10;"*";AT 4,14;"
*";AT 13,12;"*";AT 9,6;"*";AT 19
15;"*";AT 3,19;"*";AT 13,23;"*"
240 PRINT TAB 1;"BOOTES"
250 STOP
260 GOSUB 1000
270 PRINT AT 12,6;"*";AT 11,10;
"*";AT 7,10;"*";AT 13,20;"*";AT
16,16;"*";AT 15,23;"*";AT 10,20;
"*";AT 8,17;"*";AT 5,17;"*";AT 2
,21;"*";AT 4,2;"*"
280 PRINT TAB 1;"LEO"
290 STOP
1000 FOR N=1 TO 22
1005 FAST
1010 PRINT "(32*isp)"
1020 NEXT N
1025 SLOW
1030 RETURN

```



**Y**OU ARE pursued by three determined ghosts whose single aim in death is to catch and kill you. Move around the screen with the usual cursor keys, avoiding your trail, the walls, and splurge patches. If necessary, use key "0" to go into hyperspace.

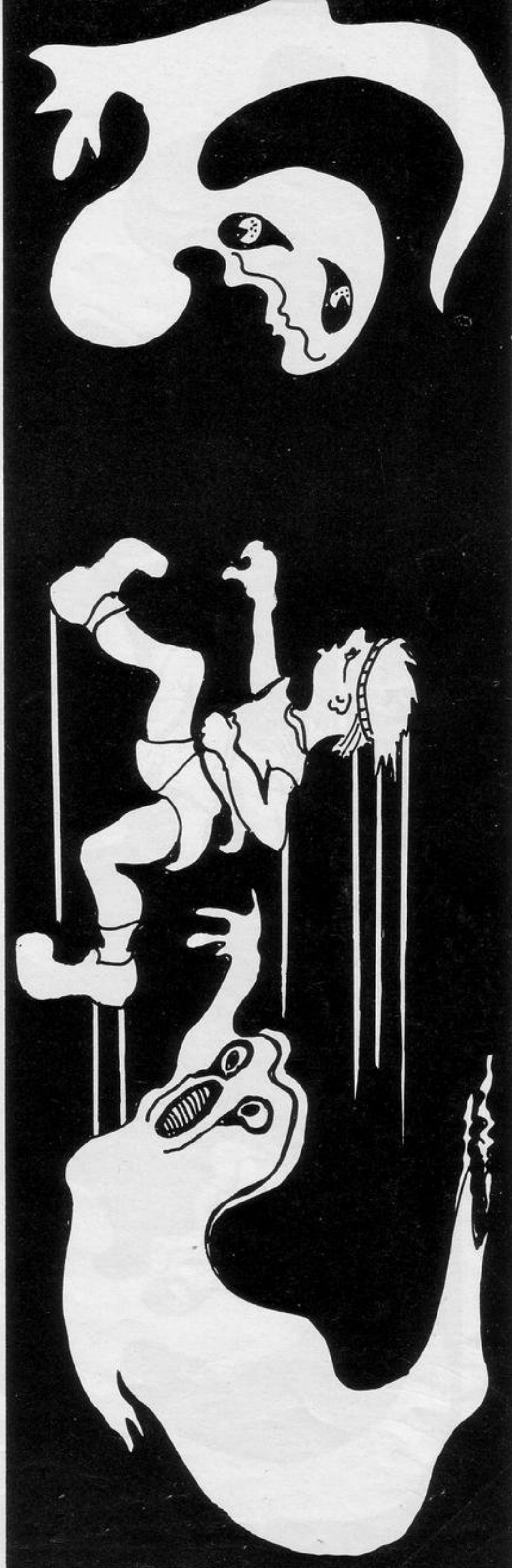
**Chaser** was written by Andrew Dollochan for the 16K ZX-81.

```

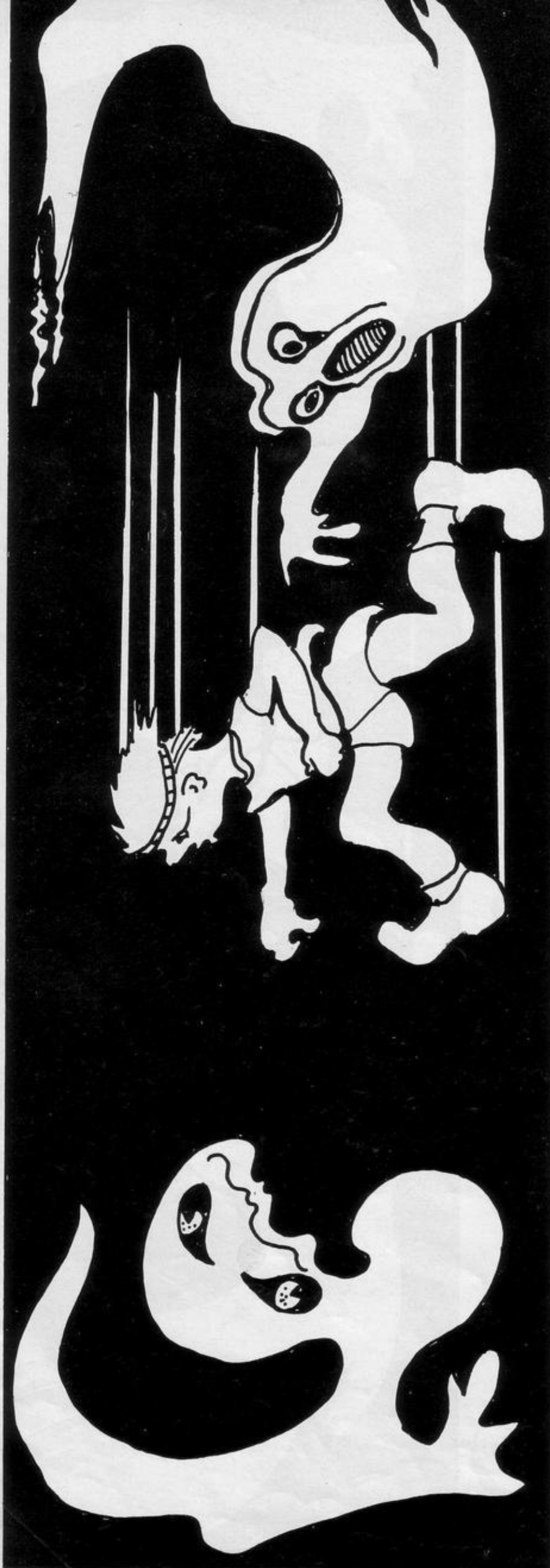
1 LET HS=0
3 LET T=0
4 GOSUB 2000
5 LET L=3
6 CLS
7 GOSUB 400
8 GOSUB 500
9 LET S=0
10 LET X=10
20 LET A=13
30 PRINT AT X,A:
41 IF PEEK (PEEK 16398+256*PEEK
K 16399)=136 THEN GOTO 140
42 IF PEEK (PEEK 16398+256*PEEK
K 16399)=128 THEN GOTO 140
43 IF PEEK (PEEK 16398+256*PEEK
K 16399)=13 THEN GOSUB 971
44 IF PEEK (PEEK 16398+256*PEEK
K 16399)=178 THEN GOSUB 140
45 PRINT "*"
47 LET T=T+1
48 IF INKEY$="0" OR INKEY$="1"
THEN GOSUB 921
49 IF INKEY$="6" THEN GOSUB 60
0
50 IF INKEY$="7" THEN GOSUB 70
0
60 IF INKEY$="8" THEN GOSUB 80
0
70 IF INKEY$="5" THEN GOSUB 90
0
75 PRINT AT Y,Z:"m"
76 PRINT AT Y1,Z1:"m"
77 PRINT AT Y2,Z2:"m"
81 PRINT AT INT (RND*19+1),INT
(RND*29+1):"(gh)"
121 LET Y=Y-(X<Y)+(X>Y)
122 LET Z=Z-(A<Z)+(A>Z)
123 LET Y1=Y1-(X<Y1)+(X>Y1)
124 LET Z1=Z1-(A<Z1)+(A>Z1)
125 LET Y2=Y2-(X<Y2)+(X>Y2)
126 LET Z2=Z2-(A<Z2)+(A>Z2)
130 GOTO 30
140 LET L=L-1
155 FOR B=0 TO 15
160 PRINT AT X,A: "(gh)"
180 PRINT AT X,A: "(gh)"
200 PRINT AT X,A: "(gh)"
220 PRINT AT X,A: "(gh)"
230 NEXT B
231 IF L<1 THEN GOSUB 1000
240 GOTO 6
400 REM SET UP BOARD
410 CLS
420 PRINT "(32*isp)"
430 PRINT AT 21,0: "(32*isp)"
440 FOR Z=0 TO 21
450 PRINT AT Z,0: "(isp)":AT Z,3
1: "(isp)"
460 NEXT Z
461 PRINT AT RND*20,RND*30: "$"
462 PRINT AT RND*20,RND*30: "$"
463 PRINT AT RND*20,RND*30: "$"
464 PRINT AT RND*20,RND*30: "$"
465 PRINT AT RND*20,RND*30: "$"
470 RETURN
500 LET Y=20
510 LET Z=1
520 LET Y1=20
530 LET Z1=30
540 LET Y2=1
550 LET Z2=30
560 RETURN
600 LET X=X+1
610 PRINT AT X-1,A: "(isp)"
615 LET S=S+10
620 RETURN
700 LET X=X-1
710 PRINT AT X+1,A: "(isp)"

```

**CHASER**







```

715 LET S=S+10
720 RETURN
800 LET A=A+1
810 PRINT AT X,A-1;"(isp)"
815 LET S=S+10
820 RETURN
900 LET A=A-1
910 PRINT AT X,A+1;"(isp)"
915 LET S=S+10
920 RETURN
921 FOR F=0 TO 10
930 PRINT AT X,A;"(i+)"
931 FOR G=0 TO 2
932 NEXT G
933 PRINT AT X,A;"+"
934 NEXT F
940 LET X=INT (RND*19+1)
950 LET A=INT (RND*29+1)
959 PRINT AT X,A;" "
960 PRINT AT X,A;"*"
961 LET S=S-20
970 RETURN
971 LET S=S+100
972 FOR R=0 TO 5
973 PRINT AT X,A;"(i$)"
974 FOR B=0 TO 2
975 NEXT B
976 PRINT AT X,A;"(i*)"
977 NEXT R
979 RETURN
1000 REM GAME OVER
1010 CLS
1020 PRINT "YOUR SCORE WAS ";S
1021 PRINT
1022 PRINT "YOU LASTED ";T;" SEC
ONDS"
1030 PRINT
1040 IF HS<S THEN LET HS=S
1050 PRINT "THE HIGHEST SCORE IS
";HS
1090 PRINT AT 15,0;"PRESS ANY KE
Y TO PLAY"
1100 FOR A=0 TO 2
1110 NEXT A
1120 PRINT AT 15,0;"press any ke
y to play"
1130 FOR A=0 TO 2
1140 NEXT A
1150 IF INKEY$="" THEN GOTO 1090
1160 GOTO 5
2000 REM INSTRUCTIONS
2010 CLS
2015 FOR T=0 TO 10
2020 PRINT AT 0,13;"* CHASE *"
2021 FOR N=0 TO 2
2022 NEXT N
2023 PRINT AT 0,13;" chase "
2030 PRINT TAB 1;"PROGRAM BY ""A
NDREW DOLLOCHAN""
2040 PRINT TAB 5;"AND ""IAN DUNL
OP""
2041 PRINT
2065 PRINT
2066 PRINT "YOU ARE PURSUED BY T
HREE STUPID THOUGH DETERMINED GH
OSTS WHOSE SINGLE AIM IN LIFE O
R SHOULD I SAY DEATH IS TO CATC
H AND KILL YOU.YOU ARE NOT ALLO
WED TO HIT YOUR TRAIL (isp) THE
WALLS (isp) SPLURGE PATCHES (
9h) BUT IF YOU HIT ($) THEN YOU
GAIN POINTS."
2070 PRINT
2080 PRINT "KEYS USED ARE ARROW
KEYS."
2090 PRINT "(5,6,7,0)"
2100 PRINT "1 OR 0 IS HYPERSPACE
."
2101 PRINT
2102 PRINT "20 POINTS ARE TAKEN
OFF IF YOU USE HYPERSPACE."
2103 NEXT T
2110 PRINT AT 21,0;"press any ke
y to play"
2120 FOR A=0 TO 2
2130 NEXT A
2140 PRINT AT 21,0;"PRESS ANY KE
Y TO PLAY"
2150 FOR A=0 TO 2
2160 NEXT A
2170 IF INKEY$="" THEN GOTO 2110
2180 RETURN

```





# SEA LANDING

**Y**OU ARE a helicopter pilot, trying to land on a ship in a stormy sea. Use cursor keys 5, 6, 7 and 8 to land on the deck. Beware, though, the ship finds it difficult to maintain its position for long and is apt to move as you are descending on it. When you have made a successful landing your time will be displayed.

**Sea Landing** was written for the 16K Spectrum by Georgea Saunders of Stockport, Cheshire.

```

1 REM BY Georgea Saunders
5 BORDER 7: INK 0: PAPER 5: C
LS
6 GO SUB 6000
10 BORDER 0: PAPER 5: INK 0: C
LS : FOR n=11 TO 21: PRINT INK 1
:AT 0,0: " " : NEXT n
1000 LET s=0: LET h$=" " : LET
x=1: LET sub=20: LET y=10
1010 LET b=10
1020 PRINT PAPER 1: INK 7:AT 14
:0: "USE THE ARROW KEYS 5,6,7,8 T
O LAND THE HELICOPTER ON THE DEC
K"
1100 PRINT AT x,y:h$
1101 LET s=s+1
1105 IF x=9 THEN GO SUB 5000
1110 BEEP .125,-30: PRINT AT x,y
: "
1120 IF INKEY$="5" THEN LET y=y-
1
1130 IF INKEY$="8" THEN LET y=y+
1
1140 IF INKEY$="6" THEN LET x=x+
1
1150 IF INKEY$="7" THEN LET x=x-
1
1155 IF sub=20 THEN GO SUB 2000
1160 IF y<=1 THEN LET y=1
1165 IF y<=1 THEN LET y=1
1170 IF x>=9 THEN LET x=9
1180 IF y>=28 THEN LET y=28
1195 LET sub=sub+1
1200 GO TO 1100
2000 REM boat
2005 LET sub=0
2010 PRINT AT 10,b: "
2019 PRINT AT 9,b: "

```

```

2020 LET b=INT (RND*20)+5
2045 PRINT INK 7:AT 9,b: "
2050 PRINT INK 2:AT 10,b: "
2060 RETURN
5000 IF ATTR (x+1,y+1)=42 THEN G
O TO 5100
5005 RETURN
5100 PRINT AT 19,1:"Time=":s
5110 PRINT AT 21,1:"Press 0 to r
un again"
5120 IF INKEY$<>"0" THEN GO TO 5
120
5130 GO TO 10
6000 REM udg
6015 POKE USR "a"+0,BIN 11111111
6020 POKE USR "a"+1,BIN 01111111
6025 POKE USR "a"+2,BIN 00111111
6030 POKE USR "a"+3,BIN 00011111
6035 POKE USR "a"+4,BIN 00001111
6040 POKE USR "a"+5,BIN 00000111
6050 POKE USR "a"+6,BIN 00000011
6115 POKE USR "b"+0,BIN 11111111
6120 POKE USR "b"+1,BIN 11111110
6125 POKE USR "b"+2,BIN 11111100
6130 POKE USR "b"+3,BIN 11111000
6135 POKE USR "b"+4,BIN 11110000
6140 POKE USR "b"+5,BIN 11100000
6145 POKE USR "b"+6,BIN 11000000
6150 POKE USR "b"+7,BIN 10000000
6210 POKE USR "c"+0,BIN 11111111
6215 POKE USR "c"+1,BIN 00011000
6220 POKE USR "c"+2,BIN 00111100
6225 POKE USR "c"+3,BIN 01111110
6230 POKE USR "c"+4,BIN 11111111
6235 POKE USR "c"+5,BIN 11111111
6240 POKE USR "c"+6,BIN 00011000
6245 POKE USR "c"+7,BIN 00011000
6900 RETURN

```



**T**HE DEADLY Astral Foxgloves hang poised above the earth. Their aim is to eat all humans and then to invade the earth. Save yourself by moving left and right with keys '1' and '2' and firing the lethal fungicide with key '0'.

The program was written for the Spectrum by I Gray of Bath, Avon.

# ASTRAL FOXGLOVES

```
5 RESTORE 50
10 FOR x=USR "a" TO USR "c"+7
20 READ a
30 POKE x,a: BEEP .1,0: NEXT x
50 DATA 16,56,56,56,56,124,255
84
60 DATA 0,16,16,16,56,56,124,1
24
70 DATA 0,28,8,28,42,73,20,34
100 LET s=0: LET hs=0
110 LET z=2
510 BORDER 0: PAPER 0: INK 7: C
LS
520 PRINT AT 7,5:"1 LEFT":AT 9
,5:"2 RIGHT":AT 11,5:"0 FIRE"
525 PRINT
AT 16,5:"Hit any key to start":
PAUSE 0
530 FOR x=-50 TO 50: BEEP .01,x
: NEXT x
550 CLS
670 LET a=1
```

```
680 LET h=0: LET u=h
690 LET c=15: LET b=c
700 LET n=c
1000 FOR y=1 TO 50
1010 PLOT INK RND*7:RND*255:RND*
125+50
1020 NEXT y
1050 PRINT AT 20,0: INK 0:" "
"
1100 FOR y=1 TO n
1110 PRINT AT z,y*2: INK 6:"a":A
T z,y*2+1: INK 0:" ": BEEP .1,2*
y
1120 NEXT y
1150 PRINT AT 0,1:"SCORE ":s,"H
I SCORE ":hs
1200 PLOT 0,22: DRAW 255,0: DRAW
0,-16: DRAW -255,0: DRAW 0,16
1300 PRINT AT 18,b:"b"
1310 PRINT AT 20,c:"c"
```

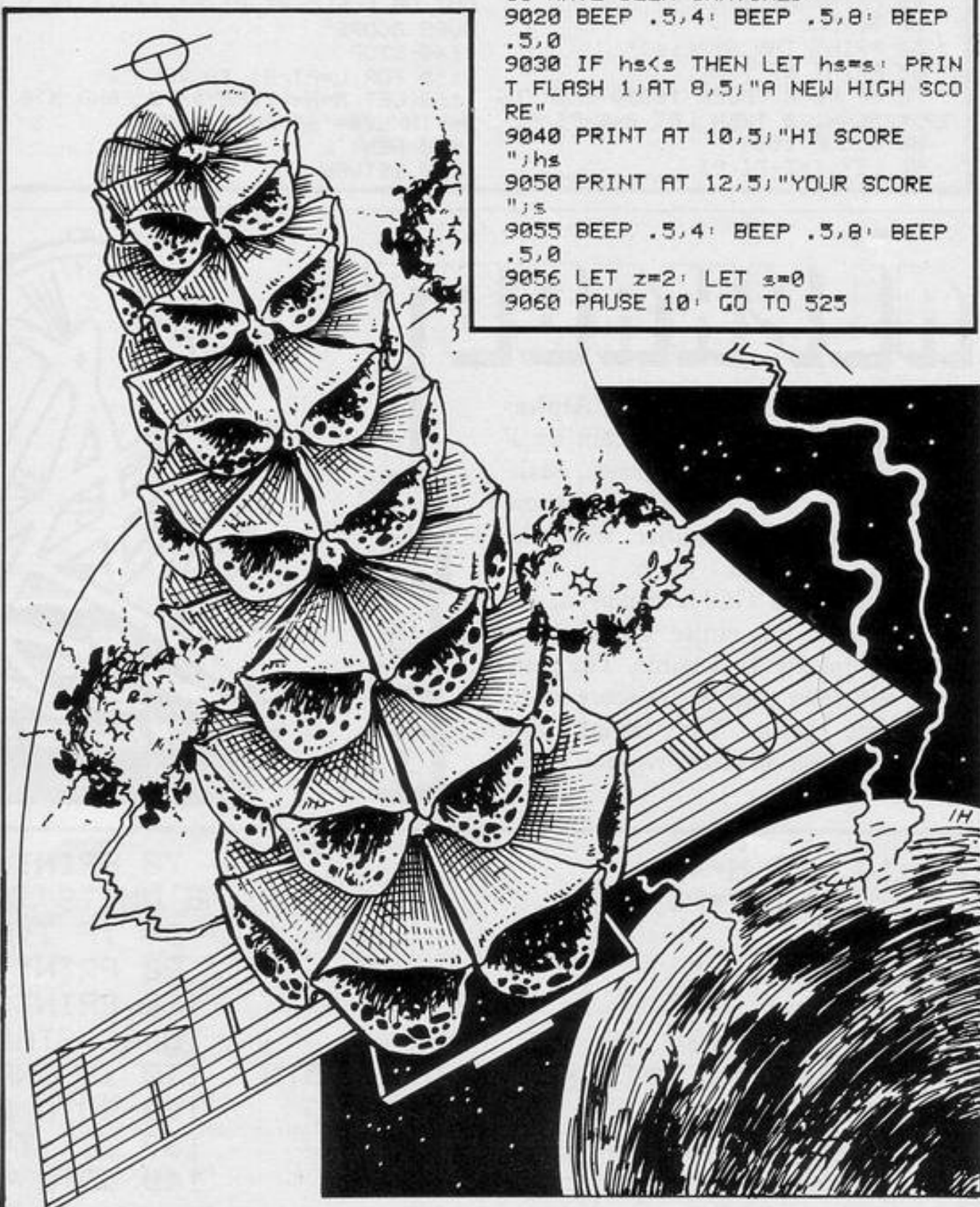
```
1400 BEEP .1,8: BEEP .1,6: BEEP
.1,8: BEEP .1,6
1450 LET u=0: IF n=0 THEN GO TO
9000
1500 GO SUB 2000: LET h=0
1550 IF u=1 THEN GO TO 5000
1600 IF y=19 THEN GO TO 4000
1700 GO SUB 2100
1800 GO SUB 3000
1900 PRINT AT 0,8:s
1910 IF h=1 THEN PRINT AT y,x) "
": GO TO 1450
1920 GO SUB 2500
1930 GO TO 1550
2000 LET n=n-1
2010 LET x=INT (RND*16)*2
2020 IF ATTR (z,x)=6 THEN LET y=
z: RETURN
2025 GO SUB 3000: GO SUB 2500
2026 IF u=1 THEN LET n=n+1: RETU
RN
2030 GO TO 2010
```

```
2100 PRINT AT y,x: INK 0:" "
2110 LET x=x+(RND*.5 AND x<30)-(
RND*.5 AND x>1)
2120 LET y=y+1
2130 PRINT AT y,x: INK 6:"a"
2140 RETURN
2500 PRINT AT 20,c: INK 0:" "
2510 IF c>29 THEN LET a=-1
2520 IF c<2 THEN LET a=1
2530 LET c=c+a
2540 IF ATTR (20,c)=6 THEN LET u
=1
```

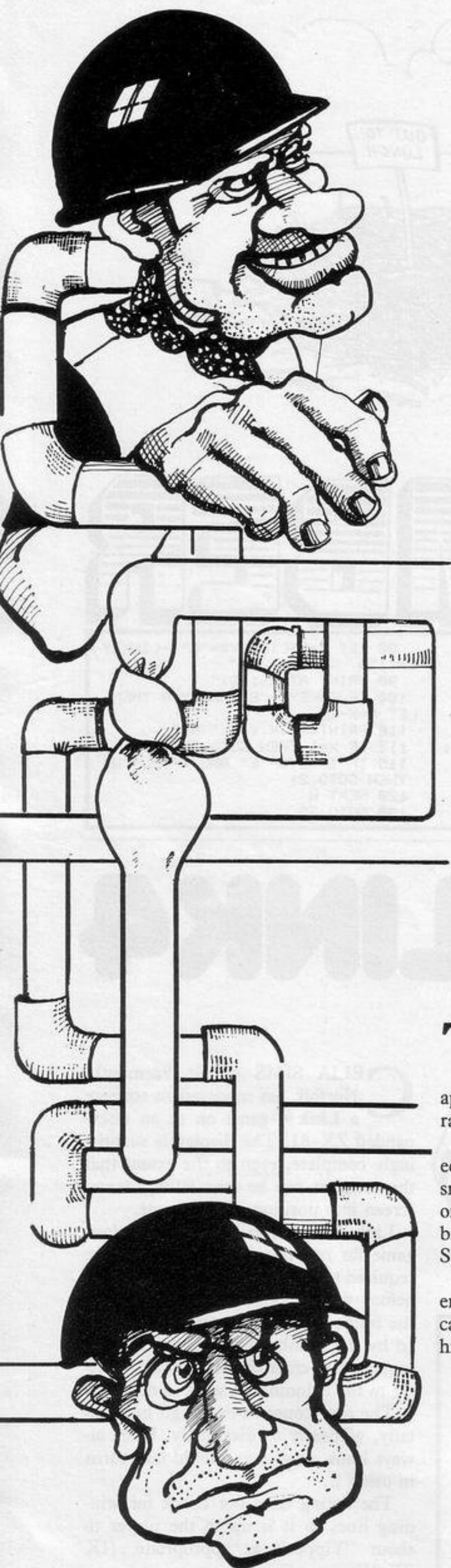
```
2550 PRINT AT 20,c:"c"
2560 RETURN
3000 PRINT AT 18,b:" "
3005 BEEP .005,b
3010 LET b=b+(b<31 AND IN 63486=
253)-(b>0 AND IN 63486=254)
3020 PRINT AT 18,b:"b"
3030 IF IN 61438<>254 THEN RETUR
N
3040 LET bp=b*8+4
3045 BEEP .005,20
3050 PLOT bp,32: DRAW 0,125-z*8
3055 BEEP .005,20
3060 OVER 1: PLOT bp,32: DRAW 0,
125-z*8: OVER 0
3070 IF b=x THEN LET h=1: LET s=
s+10
3080 RETURN
4000 IF ATTR (20,x)=7 THEN GO TO
5000
4010 PRINT AT 20,x: INK 6:"a"
4020 PRINT AT 19,x:" "
4030 GO TO 1450
5000 PRINT AT 19,c: INK 6:"a": P
RINT AT y,x) " ": GO SUB 8000: PR
INT AT y,x: INK 6:"a": LET x=c:
LET y=19
5010 PRINT AT 19,x: INK 6:"a"
```

```
5020 PRINT AT 20,x: INK 6:"c"
5030 LET h=0
5100 GO SUB 6000
5200 IF y=z THEN GO TO 9000
5210 GO SUB 3000
5220 IF h=1 THEN LET n=n+1: PRIN
T AT y,x) " ": PRINT AT y+1,x) "
": GO TO 1450
5230 GO TO 5100
6000 PRINT AT y,x: INK 6:" "
6010 PRINT AT y+1,x: INK 6:" "
6020 LET x=x+(RND*.5 AND x<31)-(
RND*.5 AND x>0)
6030 LET y=y-1
6040 PRINT AT y,x: INK 6:"a"
6050 PRINT AT y+1,x: INK 6:"c"
6060 RETURN
8000 LET x=INT (RND*16)*2
8010 IF ATTR (z,x)=6 THEN GO SUB
3000: GO TO 8000
8020 LET y=z: RETURN
```

```
9000 IF n=0 THEN PRINT AT 6,5:"T
HIS INVASION IS OVER": LET s=s+1
00: PRINT AT 8,5:"THE NEXT WAVE
HAS ARRIVED": LET z=z+1: GO TO 5
30
9010 IF y=z THEN PRINT AT 6,5:"Y
OU HAVE BEEN SNATCHED"
9020 BEEP .5,4: BEEP .5,8: BEEP
.5,0
9030 IF hs<s THEN LET hs=s: PRIN
T FLASH 1:AT 8,5:"A NEW HIGH SCO
RE"
9040 PRINT AT 10,5:"HI SCORE
":hs
9050 PRINT AT 12,5:"YOUR SCORE
":s
9055 BEEP .5,4: BEEP .5,8: BEEP
.5,0
9056 LET z=2: LET s=0
9060 PAUSE 10: GO TO 525
```







```

1 REM      PIPELINE
2 REM
3 REM      © P R LUCKETT (1983)
4 REM
5 REM
10 PRINT AT 0,12;"PIPELINE"
20 PRINT AT 2,0;"AIM we must e
ach try to finish the pipeline
by playing into the upper right f
ield; or to force our opponent
off the board"
30 PRINT AT 7,0;"RULES a) playe
rs alternate moves b) each move
must extend the pipeline int
o an adjacent field"
40 PRINT AT 12,0;"I WILL LET Y
OU CHOOSE ""PLAY ORDER"" (1=Y
OU FIRST, 2=ME FIRST)"
50 PRINT AT 14,0;"YOU CAN ALSO
PICK ""PLAY LEVEL"" (1-BEGINNE
R, 2-ADVANCED) BUT BE CAREFUL WI
TH LEVEL 2 !! I'M VERY GOOD!!!!!"
60 PRINT AT 21,0;"PRESS ANY KE
Y TO CONTINUE"
999 IF INKEY$="" THEN GO TO 999
1000 CLS : PAUSE 50
1001 DIM d(4,3): DIM e(13,13)
1002 RESTORE 9000: FOR i=1 TO 4:
FOR j=1 TO 3
1003 READ d(i,j): NEXT j: NEXT i
1005 BORDER 5
1010 PRINT INK 3; INVERSE 1;"PIP
ELINE": INPUT "PLAY ORDER(1or2)
";p0;"PLAY LEVEL(1or2)";p1;
1011 PRINT INK 5; INVERSE 1;AT 0
,24;"ADVANCED"
1012 IF p1=1 THEN PRINT INK 3; I
NVERSE 1;AT 0,24;"BEGINNER"
1013 PRINT INK 4;AT 16,26; INVER
SE 1;"PLEASE"
1014 PRINT INK 4;AT 19,26; INVER
SE 1;"WAIT"
1015 PRINT INK 4;AT 20,26; INVER
SE 1;"FOR"
1016 PRINT INK 4;AT 21,26; INVER
SE 1;"PROMPT"
1020 PLOT 49,0: DRAW 157,0: DRAW
0,157: DRAW -157,0: DRAW 0,-157
1030 LET nn=12+(p1<>p0): LET lw=
4+(p1<>p0): LET bd=12+(p1=p0)
1040 LET jj=1: LET ii=1
1050 GO SUB 2000
1060 LET n=(nn-1): LET hs=nn*(bd
-1)
1061 PLOT 50+hs,hs+1: DRAW 0,n:
DRAW n,0: DRAW 0,-n: DRAW -n,0
1070 PRINT INK 1; INVERSE 1;AT 2
,0;"PLAY 1"
1080 LET jj=bd-1: LET ii=-2: GO
SUB 2000
1090 PRINT INK 1; INVERSE 1;AT 8
,0;"PLAY 2"

```

THIS ISSUE features the start of a new feature in *Sinclair Programs*.

To celebrate our new monthly appearance we have decided to inaugurate a Program of the Month.

The first worthy winner of the coveted award is P R Lockett of Ham-smith, London, with his enthralling, original and altogether outstanding brain game, **Pipeline**, for the 48K Spectrum.

Lockett works at the European Patent Office in Munich, examining applications on digital signalling techniques; his mathematical bias is apparent in the

five strategies he has managed to build into the computer play.

He has owned a Spectrum only since Christmas, after eight computerless years, and feels this listing could doubtless be made more elegant, particularly in the resolution of the data lines into their mathematical bases.

The ability to follow winning mathematical strategies, Lockett feels, gives the computer an unassailable advantage in this type of game.

Pipeline casts you as an unprincipled pipe-laying engineer. You are shown the playing area and the choice of three

# PIPE



```

1100 LET JJ=7: GO SUB 4000
1110 PRINT INK 1; INVERSE 1; AT 1
5,0; "PLAY 3"
1120 LET JJ=2: GO SUB 6000
1130 LET II=1: LET JJ=1
1140 DIM B(15,15)
1150 FOR I=1 TO BD+2: FOR J=1 TO
BD+2
1160 LET B(I,J)=-(I=1)-(J=1)-(I=
BD+2)-(J=BD+2)
1170 NEXT J: NEXT I
1175 INPUT "SOLO? (y=yes,n=no)"; S
$
1180 LET B(2,2)=1: LET move=1
1190 LET move=move+1
1500 IF (po=1 AND (move/2=INT (m
ove/2))) OR (po=2 AND (move/2<>I
NT (move/2))) THEN GO TO 3000
1520 GO TO 5000
1999 STOP
2010 LET III=nn*(II-1)+50: LET J
JJ=nn*(JJ-1)+1
2020 FOR I=1 TO 4
2030 PLOT III+I-1, JJJ: DRAW 0,4
2040 PLOT III+I-1, JJJ+lw+4: DRAW
0,4
2050 PLOT III+lw+3+I, JJJ: DRAW 0
,4
2060 PLOT III+lw+3+I, JJJ+lw+4: D
RAW 0,4
2070 NEXT I
2080 RETURN
3000 IF S$="y" THEN GO TO 3091
3010 IF pl=2 THEN GO TO 6000
3020 IF move<>2 THEN GO TO 3060
3030 LET II=1+(RND>0.5): LET JJ=
3-II
3050 LET eg=3-2*(JJ=2)
3060 LET play=((II=1)*(eg=4)+(II
=BD)*(eg=3)+(JJ=1)*(eg=2)+(JJ=BD
)*(eg=1))*(2+(RND<0.5)))+(II=1)*
(eg=1)+(JJ=1)*(eg=3)+(II=BD)*(eg
=2)+(JJ=BD)*(eg=4))*(1+(RND<0.5)
)+(II=1)*(eg=2)+(JJ=1)*(eg=4)+(
II=BD)*(eg=1)+(JJ=BD)*(eg=3))*(1
+2*(RND<0.5))
3070 IF (II<>1) AND (II<>BD) AND
JJ<>1 AND JJ<>BD THEN LET play=
INT (1+RND*2.999)
3080 GO SUB 7000
3090 GO TO 1190
3091 INPUT "MY PLAY (1,2 or 3)"; pla
y
3092 IF move<>2 THEN GO TO 3080
3093 LET II=1+(RND>0.5): LET JJ=
3-II: LET eg=3-2*(JJ=2)
3094 GO TO 3080
4010 LET III=nn*(II-1)+50: LET J
JJ=nn*(JJ-1)+1
4020 FOR I=1 TO 4
4030 PLOT III+I-1, JJJ: DRAW nn-I
, nn-I
4040 PLOT III+I-1, JJJ+nn: DRAW 1

```

```

-I, 1-I
4050 PLOT III+lw+3+I, JJJ: DRAW 4
-I, 4-I
4060 PLOT III+lw+3+I, JJJ+nn: DRA
W -(nn-5+I), -(nn-5+I)
4070 NEXT I
4080 RETURN
5001 IF move<>2 THEN GO TO 5015
5002 INPUT "play right (r) or up (
u)"; r$;
5003 LET II=2
5004 IF r$="u" THEN LET II=1
5005 LET JJ=3-II
5010 LET eg=3-2*(JJ=2)
5015 INPUT "YOUR PLAY (1,2 or 3)"; p
lay
5020 GO SUB 7000
5999 GO TO 1190
6010 LET III=nn*(II-1)+50: LET J
JJ=nn*(JJ-1)+1
6020 FOR I=1 TO 4
6030 PLOT III+I-1, JJJ: DRAW 1-I,
I-1
6040 PLOT III+I-1, JJJ+nn: DRAW (
nn-I), -(nn-I)
6050 PLOT III+lw+3+I, JJJ: DRAW 5
-nn-I, -(5-nn-I)
6060 PLOT III+lw+3+I, JJJ+nn: DRA
W 4-I, I-4
6070 NEXT I
6080 RETURN
7010 LET B(JJ+1, II+1)=play
7020 GO SUB 2000*play
7030 LET eg=d(eg, play)
7040 LET JJ=JJ+(eg=1)-(eg=2)
7050 LET II=II+(eg=3)-(eg=4)
7060 IF B(JJ+1, II+1)=0 THEN GO T
O 7150
7070 IF B(JJ+1, II+1)<0 THEN GO T
O 7100
7080 LET play=B(JJ+1, II+1)
7090 GO TO 7030
7100 IF ((move/2)=INT (move/2))
AND (po=1) OR (move/2<>INT (mo
ve/2) AND po=2) THEN GO TO 7130
7110 PRINT INK 2; AT 1,9; FLASH 1
; "SAD LUCK-YOU LOST"
7120 GO TO 7500
7130 PRINT INK 1; AT 1,9; FLASH 1
; "WELL DONE-YOU WIN"
7140 GO TO 7500
7150 IF JJ<>BD OR II<>BD THEN RE
TURN
7160 IF ((move/2)=INT (move/2))
AND (po=1) OR (move/2<>INT (mo
ve/2) AND po=2) THEN GO TO 7130
7170 GO TO 7110
7500 INPUT "LIKE ANOTHER GO? (yes
=y, no=n)"; r$
7505 IF r$="n" THEN STOP
7510 CLS
7520 GO TO 1010
8000 IF move=2 THEN GO TO 8100

```

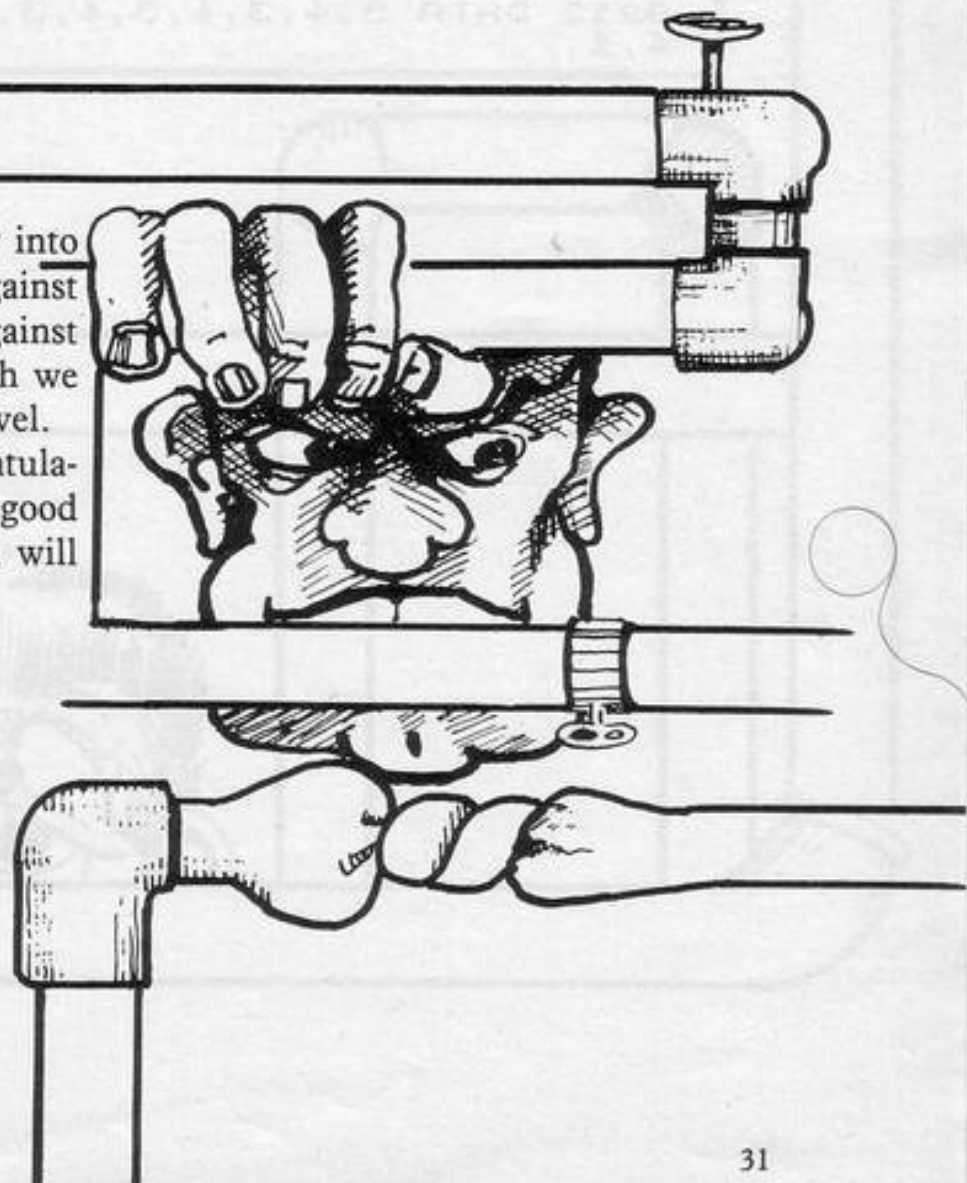
types of tiles which you can use to continue the pipe. Each tile is traversed by two white lines and a sharp eye must be kept to trace the twisting path of the pipe as it coils and flexes across the board.

The winner is the one who plays into the top right-hand corner of the screen,

or who forces an opponent to play into the side of the board. Play against another Sinclair programmer or against the Grand Master Spectrum, which we have not yet beaten at advanced level.

An astounding listing. Congratulations to our cunning author and good luck to our fortunate readers—you will love this one. (48K Spectrum).

# LINE





```

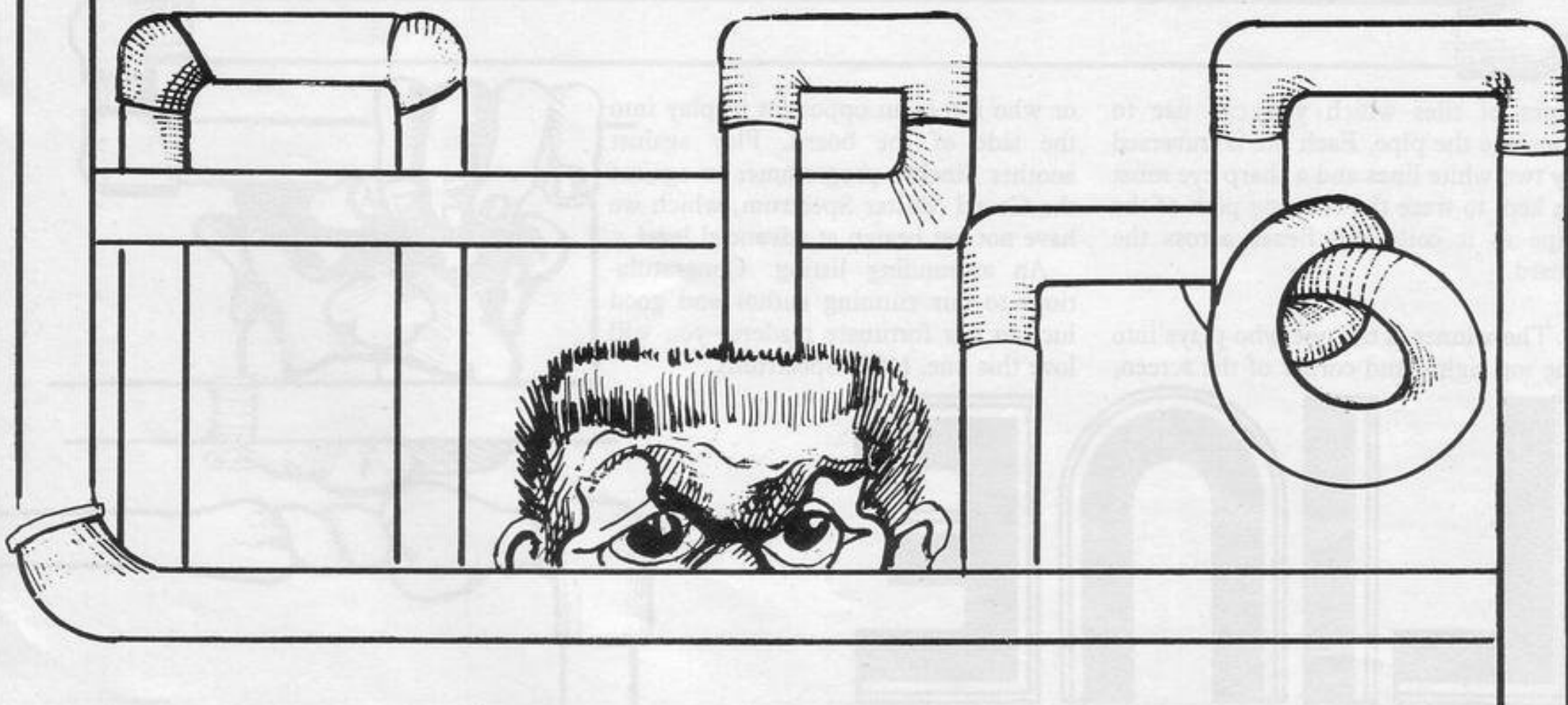
8010 IF move<>3 AND move<>4 THEN
  GO TO 8070
8020 LET rest=9300+100*(b(3,3)=2
)+200*(b(3,3)=3)
8030 IF move=3 THEN LET rest=910
0+100*(b(3,2)=0)
8040 RESTORE rest
8050 FOR i=1 TO bd: FOR j=1 TO b
d
8060 READ e(i,j): NEXT j: NEXT i
8070 LET play=1
8080 IF d(eg,play)=e(j,j,ii) THEN
  GO TO 8110
8090 LET play=play+1: GO TO 8080
8100 LET ii=1: LET jj=2: LET eg=
1: LET play=2
8110 GO SUB 7000
8120 GO TO 1190
9000 DATA 1,3,4,2,4,3,3,1,2,4,2,
1
9100 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9101 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9102 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9103 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9104 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9105 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9106 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9107 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9108 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9109 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9110 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9111 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9112 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9201 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9202 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9203 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9204 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9205 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9206 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9207 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9208 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9209 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9210 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9211 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9212 DATA 3,4,3,4,3,4,3,4,3,4,3,
4
9213 DATA 3,4,3,4,3,4,3,4,3,4,3,
4

```

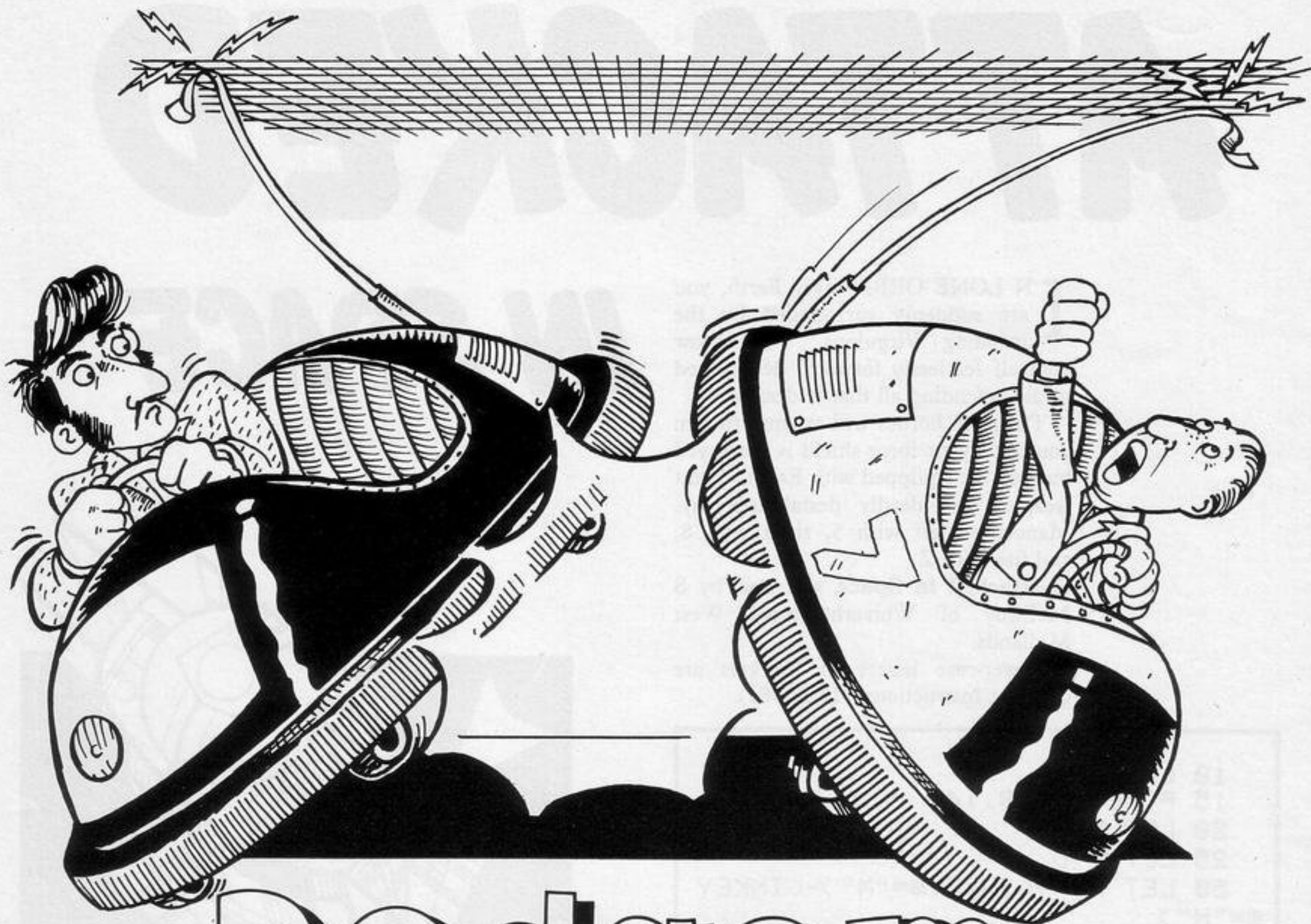
```

9301 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9302 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9303 DATA 1,2,1,1,1,1,1,1,1,1,1,
1
9304 DATA 2,1,2,2,2,2,2,2,2,2,2,
2
9305 DATA 1,2,1,1,1,1,1,1,1,1,1,
1
9306 DATA 2,1,2,2,2,2,2,2,2,2,2,
2
9307 DATA 1,2,1,1,1,1,1,1,1,1,1,
1
9308 DATA 2,1,2,2,2,2,2,2,2,2,2,
2
9309 DATA 1,2,1,1,1,1,1,1,1,1,1,
1
9310 DATA 2,1,2,2,2,2,2,2,2,2,2,
2
9311 DATA 1,2,3,4,3,4,3,4,3,4,3,
4
9312 DATA 2,3,4,3,4,3,4,3,4,3,4,
4
9401 DATA 1,1,3,4,3,4,3,4,3,4,3,
4
9402 DATA 2,1,4,3,4,3,4,3,4,3,4,
4
9403 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9404 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9405 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9406 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9407 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9408 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9409 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9410 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9411 DATA 1,1,1,1,1,1,1,1,1,1,1,
1
9412 DATA 2,2,2,2,2,2,2,2,2,2,2,
2
9501 DATA 1,3,4,1,1,1,1,1,1,1,1,
1
9502 DATA 2,1,4,2,2,2,2,2,2,2,2,
2
9503 DATA 1,2,1,1,1,1,1,1,1,1,1,
1
9504 DATA 2,1,2,2,2,2,2,2,2,2,2,
2
9505 DATA 1,2,1,1,1,1,1,1,1,1,1,
1
9506 DATA 2,1,2,2,2,2,2,2,2,2,2,
2
9507 DATA 1,2,1,1,1,1,1,1,1,1,1,
1
9508 DATA 2,1,2,2,2,2,2,2,2,2,2,
2
9509 DATA 1,2,1,1,1,1,1,1,1,1,1,
1
9510 DATA 2,1,2,2,2,2,2,2,2,2,2,
2
9511 DATA 1,2,3,4,3,4,3,4,3,4,3,
4
9512 DATA 2,3,4,3,4,3,4,3,4,3,4,
4

```







# Dodgem

**D**ODGE the coloured squares and avoid crossing your own trail. A familiar game but extremely well-written. Colourful graphics and fast-moving characters are all

packed into around 2K of memory. The speed is so fast that on its highest level it defeated its author.

It is one of a batch of excellent

programs for the 16K or 48K Spectrum which were written by P D Loach of Hadleigh, Suffolk. Try this program—it is very impressive.

```

5 LET hs=365: GO SUB 2000
10 INK 0: PAPER 6: BORDER 1: C
LS: INPUT "DIFFICULTY (1 TO 6-E
ASIST)" d: IF d<1 OR d>6 OR d>I
NT d THEN BEEP 1,0: GO TO 10
20 LET t=0: LET l=5: LET q=d+5
: LET d=d/100: FOR f=0 TO 31: PR
INT AT 0,f: INK 3: " "; AT 21,f: "
": IF f<22 THEN PRINT INK 3: AT f
,0: " "; AT f,31: " "
30 NEXT f: FOR f=1 TO 45: PRIN
T PAPER RND*3+1: AT RND*19+1, RND*
29+1: " ": NEXT f: PRINT PAPER 3:
INK 7: AT 0,16: "HIGH "; hs
40 BEEP 1,0: LET a=1: LET b=0:
LET x=15: LET y=10: FOR f=9 TO
13: PRINT AT f,14: " ": NEXT f
50 LET i$=INKEY$: IF i$>"4" AN
D i$<"9" THEN LET a=(i$="6")-(i$
="7"): LET b=(i$="8")-(i$="5"):
BEEP .005,x
60 PRINT AT 0,0: INK 7: PAPER
3: "TIME "; t
70 FOR f=1 TO q: NEXT f
90 BEEP d,x: LET t=t+1: LET y=
y+a: LET x=x+b: LET c=ATTR (y,x)
: PRINT AT y,x: " "; AT y-a,x-b: "
": IF c=48 THEN GO TO 50
100 LET du=.005: FOR f=1 TO 20:
BEEP du,f: LET du=du+.003: NEXT
f
110 LET l=l-1: PRINT PAPER 3: AT
y,x: " ": AT 21,0: PAPER 3: INK 7
: "LIVES "; l: IF l THEN GO TO 100
0

```

```

120 PRINT #0: FLASH 1: INK 2: P
APER 6: "YOU ARE OUT OF LIVES": I
F t>hs THEN PRINT AT 21,0: FLASH
1: PAPER 3: INK 7: "HIGH SCORE":
LET hs=t
130 IF INKEY$<>" " THEN GO TO 13
0
140 IF INKEY$="" THEN GO TO 140
150 GO TO 10
1000 PRINT AT 21,16: FLASH 1: IN
K 2: PAPER 6: "HA,HA !": FOR y=1
TO 20: PRINT AT y,1: PAPER 8: IN
K 0: TAB 31: NEXT y: FOR y=1 TO
15: PRINT AT RND*19+1, RND*29+1:
PAPER RND*5: " ": NEXT y
1010 PRINT AT 21,16: PAPER 3: "
": GO TO 40
2000 RESTORE: FOR f=USR "p" TO
USR "p"+7: READ a: POKE f,VAL ("
BIN "+STR$ a): NEXT f: DATA 1100
0,a,111100,1011010,1011000,10010
0,a,0
2010 BORDER 0: PAPER 0: INK 6: C
LS
2020 PRINT TAB 9: "DODGEMS" " " Yo
u ( ) must dodge your way thr
ough the maze, avoiding all obs
tacles & you mustn't cross you
r path. " " Move using the curso
r keys. "
2030 IF INKEY$<>" " THEN GO TO 20
30
2040 IF INKEY$="" THEN GO TO 204
0
2050 RETURN

```



# JUST AROUND THE CORNER, A NEW



**BLACK CRYSTAL**

The Classic, six program adventure game for the 48K Spectrum and 16K ZX-81 computers. No software collection is complete without it.

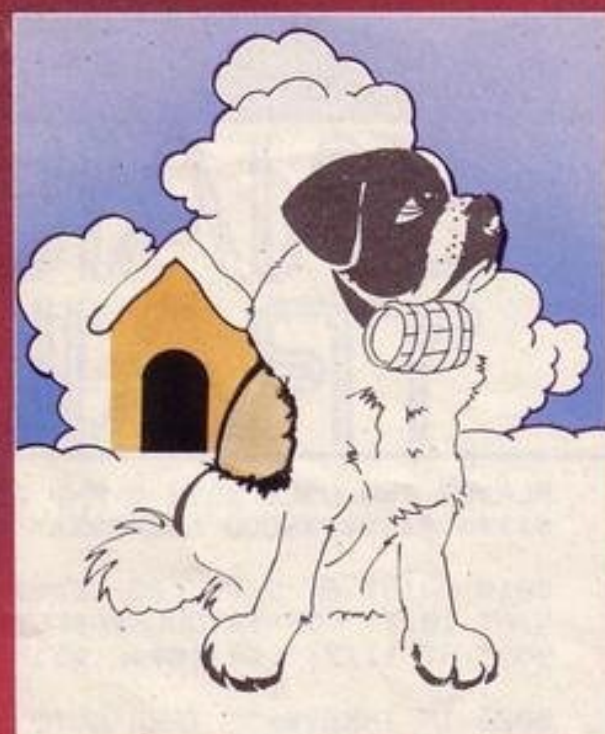
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written by Stephen Renton

Prepare yourself for the many challenges that shall confront you when you dare to enter "THE CRYPT".

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**STARFORCE ONE**

Take on the robot guardians of the central computer in a superbly stylised three dimensional battle game. 48K Spectrum £5.95.

(100% MACHINE CODE ARCADE ACTION)



**THE DEVIL RIDES IN**

I uttered the last incantations as the clock struck thirteen. All fell silent except for a faint rustling in the corner. From out of the shadows they came, all Hell's fury against me but I was not defenceless until the Angel Of Death, astride a winged horse, joined the battle. Avoiding his bolts of hell fire, I took careful aim. My chances were slim, but if my luck held . . . 48K Spectrum £5.95.

(Fast moving, machine code, all action, Arcade game)



# RANGE FROM CARNELL SOFTWARE



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The first born has been destroyed. The Black Crystal of Beroth has been banished. The alliance of Evil has been defeated by the armies of Lord Fendal. So ends the Third Age. Now we invite you to write your name in the history of the Fourth Age of the Third Continent.

You will meet friends and enemies, old and new, in the long awaited sequel to Volcanic Dungeon. Using high resolution graphics and combining the best qualities of "Black Crystal" and "Volcanic Dungeon", we will allow you to become part of this tale of revenge.

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NOTE: "The Wrath Of Magra" is a complete adventure. You need not buy "Volcanic Dungeon" or "Black Crystal" to play it.

Available through most good computer stores or direct from:  
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CARNELL SOFTWARE LTD



**M**ANOEUVRE your balloon through the minefield, using keys 5 to 8. Avoid the deadly mines. If you make contact with a mine you will lose one of your three lives but if you reach level 10 you will be awarded an extra life. If you rescue injured people you will be awarded extra points.

**Crazy Balloon** was written for the 16K ZX-81 by Glyn Emmett of Glamorgan.

# CRAZY BALLOON

```

2 LET Z$="*****"
3 GOSUB 9000
5 LET J$="ZX81"
10 LET H=1000
20 LET LI=3
30 LET L=1
40 LET B$=" "
60 LET S=0
61 LET BONUS=1000
70 LET X=20
80 LET Y=29
81 LET J=15
90 PRINT AT 0,0;"(32*9h)";AT 2
1,0;"(32*9h)"
100 FOR F=1 TO 20
110 PRINT AT F,0;"(9h)";AT F,31
;"(9h)"
120 NEXT F
130 PRINT AT 1,1;"(isp)BONUS.(i
sp)";AT 2,1;"(9e:isp)90al(isp:9r
)"
131 LET AB=2
140 PRINT AT 1,23;Z$( TO 8);AT
2,24;Z$( TO 7);AT 3,25;Z$( TO 6)
;AT 4,26;Z$( TO 5);AT 5,27;Z$( TO
4);AT 6,28;Z$( TO 3);AT 7,29;Z
$( TO 2);AT 8,30;Z$( TO 1)
150 PRINT AT 20,1;Z$( TO 18)
160 PRINT AT 18,10;Z$( TO 14)
170 PRINT AT 17,21;Z$( TO 10)
180 PRINT AT 19,1;Z$( TO 4);AT
18,1;Z$( TO 3);AT 17,1;Z$( TO 2)
190 PRINT AT 16,26;Z$( TO 5);AT
15,27;Z$( TO 4);AT 14,28;Z$( TO
3);AT 13,29;Z$( TO 2);AT 12,30;
Z$( TO 1)
200 PRINT AT 16,4;Z$( TO 14)
210 PRINT AT 15,1;Z$( TO 2)
220 FOR F=8 TO 16
230 PRINT AT F,18;Z$( TO 1)
240 NEXT F
250 FOR F=18 TO 24
260 PRINT AT 14,F;Z$( TO 1)
270 NEXT F
271 PRINT AT 12,12;"1"
272 PRINT AT 11,16;"1"
273 PRINT AT 9,19;"1"
280 FOR F=1 TO 6

```

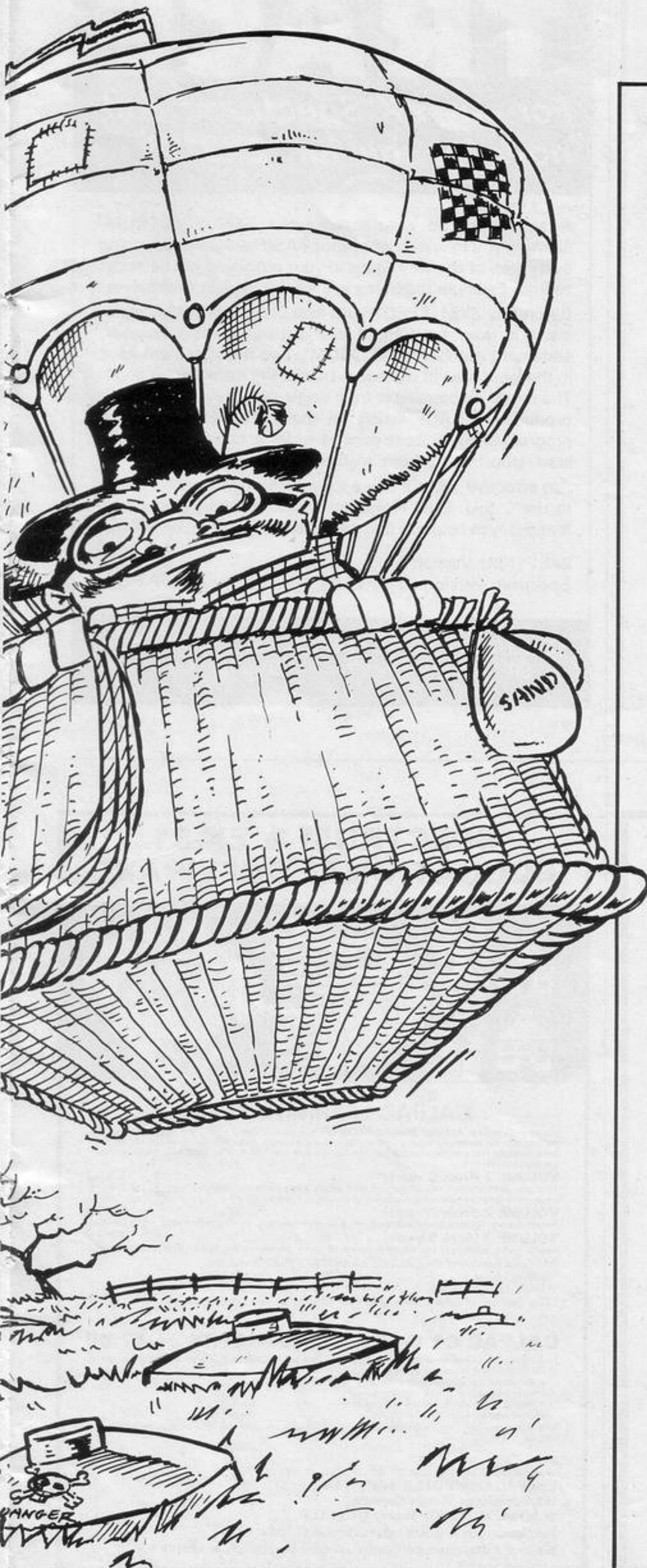
```

290 PRINT AT F,18;Z$( TO 1)
300 NEXT F
310 FOR F=1 TO 17
320 PRINT AT 10,F;Z$( TO 1)
330 NEXT F
340 PRINT AT 11,17;Z$( TO 1);AT
12,16;Z$( TO 2);AT 13,15;Z$( TO
3);AT 14,14;Z$( TO 4);AT 15,13;
Z$( TO 5)
350 PRINT AT 3,1;Z$( TO 1);AT 3
,8;Z$( TO 1)
360 FOR F=4 TO 8
370 PRINT AT F,10;Z$( TO 1)
380 NEXT F
381 LET LL=1
391 LET X=20
392 LET Y=29
393 LET J=15
400 PRINT AT X,Y;"b"
401 PRINT AT X,Y;" "
405 LET LL=INT (RND*2)+1
406 IF LL=2 THEN PRINT AT 10,5;
"*"
407 IF LL=1 THEN PRINT AT 10,5;
B$
410 IF INKEY$="7" THEN LET J=1
420 IF INKEY$="6" THEN LET J=3
430 IF INKEY$="5" THEN LET J=4
440 IF INKEY$="8" THEN LET J=2
450 IF J=1 THEN LET X=X-1
460 IF J=2 THEN LET Y=Y+1
470 IF J=3 THEN LET X=X+1
480 IF J=4 THEN LET Y=Y-1
490 PRINT AT X,Y)
500 LET Z=PEEK (PEEK 16398+256*
PEEK 16399)
510 IF Z=174 THEN LET S=S+50
511 IF Z=23 OR Z=136 THEN GOTO
700
520 LET BONUS=BONUS-1
521 PRINT AT 10,5;"*"
530 IF X=4 THEN IF Y>1 AND Y<8
THEN GOTO 550
540 GOTO 400
550 LET S=S+BONUS
560 CLS
561 LET L=L+1
562 IF L=10 THEN LET LI=LI+1

```







```

570 PRINT AT 10,10;"LEVEL=";LI;A
T 12,10;"LIVES=";LI;AT 14,8;"LET
S ATTACK"
571 PRINT AT 16,10;"SCORE=";S
580 PAUSE 100
581 CLS
590 GOTO 61
700 LET LI=LI-1
710 IF LI<0 THEN GOTO 900
720 PAUSE 50
730 GOTO 391
900 CLS
910 PRINT AT 10,10;"game over";
AT 12,12;"SCORE=";S
920 IF H>S THEN GOTO 950
930 PRINT AT 20,0;"PLEASE ENTER
NAME"
940 INPUT J$
941 IF S>H THEN LET H=S
950 PRINT AT 14,2;"HIGH SCORE="
JH
960 PRINT AT 16,4;"BY ";J$
970 PAUSE 500
980 CLS
990 PRINT "AGAIN (Y/N)?"
991 INPUT A$
992 IF A$="Y" THEN GOTO 20
993 IF A$="" THEN GOTO 20
1000 STOP
9000 CLS
9001 PRINT TAB 0;"CRAZY BALLOON"
9010 PRINT ,, "MANOUVERE YOUR BAL
LOON THROUGH THE MINE-FIELD.A
VOIDING THE"
9020 PRINT "ALWAYS PRESENT deadl
y MINES.IF YOU MAKE CONTACT WIT
H ONE YOU WILL LOSE ONE OF YOU
R 3 LIVES BUT IF YOU GET TO LE
VEL 10 YOU WILL BE AWARDED AN E
XTRA LIFE."
9030 PRINT
9040 PRINT "USE KEYS:"
9050 PRINT TAB 10;"5=LEFT";TAB 1
0;"8=RIGHT"
9060 PRINT TAB 10;"6=DOWN";TAB 1
0;"7=UP"
9070 PRINT ,, "BEWARE OF THE ELEC
TRIC FENCE WHICH SURROUNDS TH
E MINE-FIELD. IF YOU RESCUE THE
INJURED PEOPLE""1""YOU WILL GAIN
EXTRA POINTS."
9090 PRINT AT 13,22;"HIT ""S""
9100 PRINT AT 14,22;"TO START"
9110 PRINT AT 13,22;" " "AT
14,22;"
9120 IF INKEY#<>"S" THEN GOTO 90
90
9130 CLS
9140 RETURN
9990 SAVE "CRAZY BALLOON"
9999 RUN

```



# DONKEY DIAMOND

```

1 LET C=2
2 LET F=9
3 LET I=6
4 LET H=22
5 LET G=16
6 LET SC=0
7 CLS
8 PRINT AT 0,0;"(32*1sp)"
9 PRINT AT 21,0;"(32*1sp)"
10 FOR A=1 TO 20
11 PRINT AT A,0;"(1sp)";AT A,3
12 NEXT A
13 PRINT AT 4,24;"(1<1*1>)"
14 PRINT AT 17,1;"(9e:3*97:9r:
sp:9e:3*97:9r:sp:9e:3*97:9r:sp:9
e:3*97:9r:sp:9e:3*97:9r)"
15 PRINT AT 20,1;"(30*9a)"
16 PRINT AT 18,1;"(5*97:sp:5*9
7:sp:5*97:sp:5*97:sp:6*97)"
17 PRINT AT 13,4;"(9e:97:9r:sp
:9e:97:9r:sp:9e:97:9r:sp:9e:97:9
r:sp:9e:97:9r:sp:9e:97:9r)"
18 PRINT AT 14,4;"(9w:96:9a:sp
:9w:96:9a:sp:9w:96:9a:sp:9w:96:9
a:sp:9w:96:9a:sp:9w:96:9a)"
19 PRINT AT 16,27;"H";AT 13,27
;"H";AT 15,27;"H";AT 14,27;"H"
20 PRINT AT 9,6;"(7*1sp)"
21 FOR A=9 TO 12
22 PRINT AT A,6;"H"
23 NEXT A
24 PRINT AT 9,20;"(5*1sp)"
25 FOR A=5 TO 8
26 PRINT AT A,21;"H"
27 NEXT A
28 PRINT AT 5,22;"(9e:5*97:9r)
";AT 6,22;"(9w:5*96:9a)"
29 FOR A=5 TO 16
30 PRINT AT A,29;"H"
31 NEXT A
32 LET A$=INKEY$
33 LET C=C+(A$="8")-(A$="5")
34 LET SC=SC+1
35 PRINT AT G,C;"(1 )";AT G,C-
1;" ";AT G,C+1;" ";AT 16,27;"H"
36 PRINT AT 9,13;"(7*9a)";AT 8
,14;" " " " "
37 IF A$="6" AND C=29 AND G=4
THEN GOTO 7000
38 LET F=F+1
39 IF A$="7" AND C=27 AND G=16
THEN GOTO 87
40 IF A$="7" AND G=12 AND C=6
THEN GOTO 90
41 LET H=H-1
42 IF G=4 AND C=24 THEN PRINT
AT 4,23;" "
43 LET I=I+1
44 IF A$="1" THEN LET C=C-2
45 IF G=4 AND C=29 THEN GOTO 9
8
46 IF A$="1" THEN PRINT AT G,C
+2;" "
47 IF A$="0" THEN LET C=C+2
48 IF A$="0" THEN PRINT AT G,C
-2;" "
49 PRINT AT 8,1;"E";AT 8,I-1;"
"
50 IF I=12 THEN LET I=6
51 PRINT AT 16,H;"O O";AT 16
,H+5;" "
52 PRINT AT 12,7;" "
53 PRINT AT 12,F;"(9t)";AT 12,
F-1;" "
54 IF F>24 THEN LET F=9
55 IF F=C AND G=12 THEN GOTO 7
7
56 IF G=8 AND C=14 OR C=16 AND
G=8 OR C=18 AND G=8 THEN GOTO 7
57 IF H=1 THEN LET H=22
59 IF C=5 AND G=8 THEN GOTO 77
60 IF C=12 AND G=16 THEN GOTO
77
61 IF C=18 AND G=16 THEN GOTO
77
62 IF A$="7" AND C=21 AND G=8

```





**C** LIMB THE LADDERS to reach the diamond at the top. Jump the barrels on the first floor, the alien on the second floor, and the guardian and the ghosts of past adventurers on the third floor. Move left with "5", jump left with "1", move right with "8", and jump right with "0" and climb ladders with "7".

Falling down a hole or hitting anything will kill you. Once you have your score, return to the ground floor by the ladder on the right of the screen to obtain your score.

**Donkey Diamond** was written for the 16K ZX-81 by Charles Sandison of Caithness, Scotland.

```

THEN GOTO 94
63 IF C=24 AND G=16 THEN GOTO
77
64 IF C=7 AND G=12 THEN GOTO 7
7
65 IF C=11 AND G=12 THEN GOTO
77
66 IF C=15 AND G=12 THEN GOTO
77
67 IF C=19 AND G=12 THEN GOTO
77
68 IF C=6 AND G=16 THEN GOTO 7
7
69 IF G=12 AND C=23 OR C=28 AN
D G=12 THEN GOTO 77
70 IF C=H+4 AND G=16 THEN GOTO
77
71 IF C=H AND G=16 THEN GOTO 7
7
73 IF C=I AND G=8 THEN GOTO 77
74 PRINT AT 12,F-2;" ";AT 8,12
;" ";AT 16,5;" ";AT 16,1;" "
75 PRINT AT 12,24;" "
76 GOTO 32
77 FOR F=G TO 19
78 PRINT AT F,C;"(1)";AT F,C;
" "
79 NEXT F
80 PRINT AT F,C;" ""

```

```

81 PRINT AT 0,0;" too bad-Pres
s "" to try again "
82 PRINT AT 21,0;" Press
"s" to stop "
83 INPUT B$
84 IF B$="S" THEN STOP
85 IF B$<>"S" THEN GOTO 1
86 STOP
87 PRINT AT 12,27;"(1)";
88 LET G=12
89 GOTO 32
90 PRINT AT 0,6;"(1)";
91 PRINT AT 12,6;"H"
92 LET G=8
93 GOTO 32
94 PRINT AT 4,21;"(1)";
95 PRINT AT 8,21;"H"
96 LET G=4
97 GOTO 32
98 PRINT AT 16,C;"(1)";AT 4,2
9;" "
101 PRINT AT 0,0;" well done'mi
sson completedd "
103 PRINT AT 21,0;" time taken[
";SC;" score[";100-SC;"(4%isp)
"
104 INPUT B$
105 IF B$="" THEN GOTO 1
106 IF B$<>" " THEN STOP

```





# PETROL

**P**ETROL CONSUMPTION, written by A Briggs of Broms-grove, Worcestershire calculates and displays graphically vehicle fuel consumption on the ZX-81. Full instructions are included in the program. When you are asked for the cost of fuel, enter the amount of money spent when the tank was last filled.

```

10 5 GOSUB 3000
11 GOTO 4000
12 DIM N(56)
13 DIM E(56)
14 LET N=1
15 LET G=0
16 GOSUB 3000
17 CLS
18 PRINT TAB 10;C$;" MPG"
19 PRINT
20 PRINT TAB 1;"SPEEDO LAST FUEL"
21 REM M=SPEEDO LAST FUEL
22 PRINT TAB 24;M
23 PRINT TAB 1;"DATE THIS FUEL"
24 PRINT
25 INPUT D$
26 PRINT AT 3,16;" "TAB 24;D$
27 PRINT TAB 1;"SPEEDO THIS FUEL"
28 REM S=SPEEDO THIS FUEL
29 INPUT S
30 PRINT AT 4,18;" "TAB 24;S
31 PRINT TAB 1;"GALS AFTER LAST FILLED"
32 REM G=TOTAL GALS TO LAST FILL
33 PRINT TAB 24;G
34 PRINT TAB 1;"COST OF FUEL, £.P !"
35 REM C=COST OF FUEL £.P
36 INPUT C
37 PRINT AT 6,18;" "TAB 24;C
38 PRINT TAB 1;"£.P PER GAL/LITRE !"
39 REM L=PRICE PER GAL/LITRE £
40 INPUT L
41 IF L<1 THEN LET L=INT (L/.2
42 2*1000+.5)/1000
43 PRINT AT 7,19;" "TAB 24;L
44 LET G=G+INT (C/L*100+.5)/10
45 PRINT TAB 1;"TOTAL GALS TO DATE"
46 PRINT TAB 24;G
47 LET X=INT ((S-M)/(C/L)*100+.5)/100
48 PRINT TAB 1;"MPG, LAST FILL"
49 PRINT TAB 24;X
50 LET M=S
51 LET Y=INT ((S-M1)/G*100+.5)/100
52 PRINT TAB 1;"OVERALL MPG"
53 PRINT TAB 24;Y
54 PRINT
55 FOR U=1 TO 150
56 IF INKEY$="H" THEN LET U=14
57 NEXT U
58

```



# CONSUMPTION

```

310 CLS
1010 PRINT AT 21,0;S1;"-----
-----";S1
1020 PRINT AT 16,0;S1+5;"-----
-----";S1+5
1030 PRINT AT 11,0;S1+10;"-----
-----";S1+10
1040 PRINT AT 6,0;S1+15;"-----
-----";S1+15
1050 PRINT AT 1,0;S1+20;"-----
-----";S1+20
1060 PRINT AT 0,7;C$;" OVERALL m
PG"
1065 PRINT AT 1,7;"REG NO ";R$
1070 PRINT AT 2,7;"INITIAL MILES
";M1
1080 PRINT AT 3,7;"CURRENT MILES
";S
1090 PRINT AT 4,7;P$;" TO ";D$
2000 LET E(N)=(((INT (Y+.5))-S1)
)*2
2010 IF E(N)>40 THEN LET E(N)=40
2012 IF E(N)<0 THEN LET E(N)=0
2015 FOR N=1 TO N
2020 FOR H=0 TO E(N)
2030 PLOT N+3,H
2035 NEXT H
2040 NEXT N
2100 FOR U=1 TO 200
2105 IF INKEY$="H" THEN LET U=19
0
2110 NEXT U
2120 CLS
2130 GOTO 8000
3010 CLS
3020 PRINT AT 5,0;"to HOLD DISPL
AY PRESS ""H""
3030 FOR U=1 TO 75
3040 NEXT U
3050 CLS
3060 RETURN
4000 PRINT "car overall Petrol c
onsumption"
4010 PRINT
4020 PRINT "**THIS PROGRAMME CAL
CULATES AND GRAPHICALLY DISPLAYS
A CAR'S OVER-ALL FUEL CONSUMPTIO
N TO THE NEAREST MPG,FOLLOWIN
G EACH FUEL PURCHASE."
4021 PRINT
4022 PRINT "**AFTER FIRST ENTERI
NG THE CAR DETAILS,IT IS ONLY N
ECESSARY TO INPUT THE DATE,SPEED

```

```

0,COST AND PRICE PER GALLON OR
LITRE AS PROMPTED"
4023 PRINT
4024 PRINT "**ALTHOUGH THE RESUL
TS WILL IN ANY CASE GET PROGRES
SIVELY MORE ACCURATE IT IS BETTE
R TO FILL THE TANK,OR NEARLY 9
0,AT EACH PURCHASE TO ACHIEVE
THE MAXIMUM ACCURACY FROM THE ST
ART"
4030 FOR U=1 TO 300
4033 IF INKEY$="H" THEN LET U=29
0
4034 NEXT U
4035 CLS
4040 PRINT "INPUT CAR TYPE E.G."
"CAPRI""
4050 INPUT C$
4060 PRINT
4070 PRINT "INPUT REGISTRATION N
UMBER E.G.""TLT 512 M""
4080 INPUT R$
4090 PRINT
4100 PRINT "INPUT SPEEDOMETER RE
ADING OF INITIAL FUEL BOUGHT
E.G. 15509"
4110 INPUT M
4120 LET M1=M
4130 PRINT
4140 PRINT "INPUT DATE OF INITIA
L PURCHASE E.G. 24.12.81"
4150 INPUT P$
4160 PRINT
4170 PRINT "INPUT MINIMUM EXPECT
ED MPG FOR GRAPH BASE E.G. 20"
4180 INPUT S1
4190 GOTO 15
8020 CLS
8030 PRINT AT 5,0;"PRESS R FOR N
EXT CALCULATION"
8040 PRINT AT 7,0;"PRESS S TO SA
VE"
8060 IF INKEY$="R" THEN GOTO 25
8070 IF INKEY$="S" THEN GOTO 900
0
8080 FOR U=1 TO 5
8085 NEXT U
8090 IF INKEY$<>"R" OR INKEY$<>"
S" THEN GOTO 8020
9000 SAVE "CAR MPg"
9050 GOTO 25
9500 SAVE "CAR MPg"
9550 GOTO 5

```



**T**HE OBJECT of **The Clown** is to answer 20 questions on either addition or subtraction correctly. If you choose to answer subtraction questions, a correct answer will result in a tick being drawn on the screen. Alternatively you can answer questions on addition, in which case a correct answer will result in a smiling clown, whereas an incorrect one will result in a gloomy clown.

The Clown was written for the 16K ZX-81 by David Read of Ashby-de-la Zouch, Leics.

# THE CLOWN

```

35 CLS
40 FOR F=0 TO 21
41 PRINT "
42 NEXT F
46 PRINT AT 1,2;"DO YOU WISH T
0 STUDY -";AT 3,3;" + PRESS A";AT
5,3;" - PRESS B"
50 LET A$="
52 PRINT AT 9,0;A$
54 LET I$=INKEY$
55 IF I$="A" THEN GOTO 70
56 IF I$="B" THEN GOTO 322
55 GOTO 54
70 CLS
80 PRINT AT 1,25;"KEY IN ";AT
2,25;"ANSWER";AT 3,25;"AFTER";AT
4,25;"SUM";AT 5,25;"APPEARS"
85 PRINT AT 9,20;"
10,19;"
";AT 11,20;"
";AT 13,23;"
";AT 14,23;"
"
88 PRINT AT 16,20;"
90 LET C=0
95 LET S=0
97 LET C=C+1
100 LET A=INT (RND*50)
105 LET B=INT (RND*50)
107 IF A+B=0 THEN GOTO 100
110 PRINT AT C,1;A;"+";B;"="
115 INPUT D
117 IF D=0 THEN GOTO 35
120 PRINT AT C,7;D
130 IF D=A+B THEN GOTO 200
135 IF D<>A+B THEN GOTO 300
200 PRINT AT 16,20;"
205 PRINT AT 16,20;"
";AT 18,20;"
";AT 19,20;"
";AT 20,20;"
";A
T 17,20;"
";AT 18,20;"
";AT 19,20;"
";AT 20,20;"
";A
210 LET S=S+1
215 IF C=21 THEN GOTO 225
220 GOTO 97
225 CLS
230 PRINT "YOU GOT ";S;" OUT OF
20"
235 IF S=0 THEN PRINT AT 2,0;"V
ERY WELL DONE"
240 IF S=15 THEN PRINT AT 2,0;"
GOOD"
245 IF S=10 THEN PRINT "HALF RI
GHT, NOT BAD"
250 PAUSE 30
255 GOTO 35
300 PRINT AT 16,20;"
305 PRINT AT 16,20;"
";AT 18,20;"
";AT 19,20;"
";AT 20,20;"
";A
T 17,20;"
";AT 18,20;"
";AT 19,20;"
";AT 20,20;"
";A
310 PRINT AT C,10;"ANSWER=";A+B
315 IF C=21 THEN GOTO 225
320 GOTO 97
322 CLS
323 LET C=0
324 LET S=0
325 LET A=INT (RND*50)

```

```

330 LET B=INT (RND*50)
335 IF A-B<=0 THEN GOTO 325
345 PRINT AT C,0;A;"-";B;"="
350 INPUT D
352 IF D=0 THEN GOTO 35
355 PRINT AT C,7;D
357 LET C=C+1
360 IF D=A-B THEN GOTO 400
365 GOTO 500
400 FOR F=12 TO 21
405 PRINT AT F,21;"
410 NEXT F
415 PRINT AT 12,29;"
";AT 13,28
";AT 14,27;"
";AT 15,26;"
";A
T 16,25;"
";AT 17,24;"
";AT 17,2
3;"
";AT 16,22;"
";A
420 LET S=S+1
425 IF C=21 THEN GOTO 225
430 GOTO 325
500 FOR F=12 TO 21
505 PRINT AT F,21;"
510 NEXT F
515 PRINT AT 12,21;"
";AT 13,21
";AT 14,21;"
";AT 15,21;"
";AT 16,21;"
";A
";AT 17,21;"
";A
520 PRINT AT C-1,10;"ANSWER=";A
-B
525 FOR F=0 TO 15
530 NEXT F
535 IF C=21 THEN GOTO 225
540 GOTO 325

```





# Upgrade your 16K ZX SPECTRUM Now!

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**WH SMITH**



```

10 BORDER 1: PAPER 7: INK 1: C
LS : POKE 23609,50
100 PRINT AT 3,9:"PERIODIC TABL
E":AT 5,15:"BY":AT 7,13:"C.EDE."
110 PRINT AT 10,4:"This Program
is designed":AT 11,4:"to help
you learn about":AT 12,4:"the P
eriodic Table. There":AT 13,4:"ar
e instructions through":AT 14,4:
"the Program to tell you":AT 15
,7:"how to operate it.":AT 17,5:
"PRESS ANY KEY TO START": PAUSE
0

```

```

120 CLS : PRINT "" Now you mu
st choose which Part of the Progr
am you wish to use. When you h
ave decided from the list below,
Press the number by the one you
want and you will get the Part
you require."

```

```

130 PRINT "" 1 Choose an elem
ent. "" 2 Element test. "" 3 R
un through the whole table. ""
4 End the Program.

```

```

140 LET a$=INKEY$: IF a$="1" OR
a$="2" OR a$="3" OR a$="4" THEN
GO TO VAL a$*1000
150 GO TO 140

```

```

1000 CLS : PRINT "" Enter the N
AME or SYMBOL of the element you
wish to know about and Press th
e 'ENTER' key. "" Don't forget t
o use a capital letter at the b
eginning of each NAME or SYMBOL.
"

```

```

1010 INPUT n$: FOR b=1 TO 103: R
ESTORE 4998+b*2: READ J$,S$: IF
n$=J$ OR n$=S$ THEN GO TO 1100
1020 NEXT b: CLS : PRINT "" The
re is no such element.": GO TO 1
110

```

```

1100 READ a: CLS : PRINT "" Ele
ment: "J$": Symbol: "S$:
Atomic number: "b": Mass numb
er: "a": Number of Protons:
"b": Number of neutrons: "a-b
": Number of electrons: "b
1110 PRINT "" Another element Y/
N?

```

```

1120 IF INKEY$="y" THEN GO TO 10
00
1130 IF INKEY$="n" THEN GO TO 12
0

```

```

1140 GO TO 1120
2000 CLS : PRINT "" You will n
ow be tested on the elements. Y
ou will be asked a number of qu
estions on each element. "" Do
n't forget to use a capital lett
er for names and symbols. Now
enter how far down the table you
want to be tested on and Pres
s 'ENTER'.

```

```

2010 INPUT nd: IF nd<1 OR nd>103
THEN GO TO 2010
2020 CLS : PRINT "The questions
on each element will be Printe
d up one by one. After answerin

```

```

2030 INPUT nd: IF nd<1 OR nd>103
THEN GO TO 2010
2040 CLS : PRINT "The questions
on each element will be Printe
d up one by one. After answerin

```

```

g a question Press 'ENTER'."
2030 LET rn=INT (RND*nd)+1: REST
ORE 4998+rn*2: READ J$,S$,a: PRI
NT "" Element: "J$": Symbol:
": GO SUB 2200
2040 IF a$=S$ THEN GO SUB 2300:
GO TO 2050
2045 GO SUB 2310

```

```

2050 PRINT "" Atomic number: "
: GO SUB 2200: IF a$=STR$ rn THE
N GO SUB 2300: GO TO 2060
2055 GO SUB 2310
2060 PRINT "" Mass number: "
: GO SUB 2200: IF a$=STR$ a THEN G
O SUB 2300: GO TO 2070
2065 GO SUB 2310
2070 PRINT "" Number Protons: "
: GO SUB 2200: IF a$=STR$ rn TH
EN GO SUB 2300: GO TO 2080
2075 GO SUB 2310

```

```

2080 PRINT "" Number Neutrons:
": GO SUB 2200: LET op=a-rn: IF
a$=STR$ op THEN GO SUB 2300: GO
TO 2087
2085 GO SUB 2310
2087 PRINT "" Number Electrons:
": GO SUB 2200: IF a$=STR$ rn
THEN GO SUB 2300: GO TO 2100
2090 GO SUB 2310

```

```

2095 GO SUB 2310
2100 PRINT "" Another test Y/N"
2110 IF INKEY$="y" THEN GO TO 20
20
2120 IF INKEY$="n" THEN GO TO 12
0

```

```

2130 GO TO 2110
2200 INPUT a$: PRINT " "a$: RE
TURN
2300 PRINT " RIGHT": FOR i=1 TO
50 STEP 5: BEEP .05,1: NEXT i:
RETURN
2310 PRINT " WRONG": BEEP 1,-1:
RETURN

```

```

2320 CLS : PRINT "" You now ge
t each element Put on the scree
n one by one. "" Now enter the
atomic number you wish to star
t and finish at.

```

```

2330 INPUT "Start "st: IF st<1
THEN GO TO 3010

```

```

2340 INPUT "Finish "fi: IF fi>1
03 THEN GO TO 3012
2350 IF st>fi THEN GO TO 3010
2360 CLS : PRINT "" Press '1'
if you want to Press a key after
each element. "" Press '2' if y
ou want it to change the eleme
nt after a time.

```

```

2370 IF INKEY$="1" THEN LET de=0
: GO TO 3050
2380 IF INKEY$="2" THEN INPUT "D
elay time (lower=faster) "de: L
ET de=de+1: GO TO 3050

```

```

2390 GO TO 3020
3050 FOR b=st TO fi: RESTORE 499
8+b*2: READ J$,S$,a
3070 CLS : BEEP .05,2: PRINT ""
Element: "J$": Symbol: "S$:
"" Atomic number: "b": Mass

```

```

number: "a": Number of Proton
s: "b": Number of neutrons: "
a-b": Number of electrons: "b

```

```

3080 PAUSE de: NEXT b: GO TO 120
5000 DATA "Hydrogen","H",1
5002 DATA "Helium","He",4
5004 DATA "Lithium","Li",7
5006 DATA "Beryllium","Be",9
5008 DATA "Boron","B",11
5010 DATA "Carbon","C",12
5012 DATA "Nitrogen","N",14
5014 DATA "Oxygen","O",16
5016 DATA "Fluorine","F",19
5018 DATA "Neon","Ne",20
5020 DATA "Sodium","Na",23
5022 DATA "Magnesium","Mg",24
5024 DATA "Aluminium","Al",27
5026 DATA "Silicon","Si",28
5028 DATA "Phosphorus","P",31

```

```

5030 DATA "Sulphur","S",32
5032 DATA "Chlorine","Cl",35
5034 DATA "Argon","Ar",40
5036 DATA "Potassium","K",39
5038 DATA "Calcium","Ca",40
5040 DATA "Scandium","Sc",45
5042 DATA "Titanium","Ti",48
5044 DATA "Vanadium","V",51
5046 DATA "Chromium","Cr",52
5048 DATA "Manganese","Mn",55
5050 DATA "Iron","Fe",56
5052 DATA "Cobalt","Co",59
5054 DATA "Nickel","Ni",59
5056 DATA "Copper","Cu",64
5058 DATA "Zinc","Zn",65
5060 DATA "Gallium","Ga",70
5062 DATA "Germanium","Ge",73
5064 DATA "Arsenic","As",75
5066 DATA "Selenium","Se",79
5068 DATA "Bromine","Br",80
5070 DATA "Krypton","Kr",84

```

```

5072 DATA "Rubidium","Rb",85
5074 DATA "Strontium","Sr",88
5076 DATA "Yttrium","Y",89
5078 DATA "Zirconium","Zr",91
5080 DATA "Niobium","Nb",93
5082 DATA "Molybdenum","Mo",96
5084 DATA "Technetium","Tc",98
5086 DATA "Ruthenium","Ru",102
5088 DATA "Rhodium","Rh",103
5090 DATA "Palladium","Pd",107
5092 DATA "Silver","Ag",108
5094 DATA "Cadmium","Cd",112
5096 DATA "Indium","In",115
5098 DATA "Tin","Sn",119
5100 DATA "Antimony","Sb",122
5102 DATA "Tellurium","Te",128
5104 DATA "Iodine","I",127
5106 DATA "Xenon","Xe",132
5108 DATA "Caesium","Cs",133
5110 DATA "Barium","Ba",138
5112 DATA "Lanthanum","La",139

```

```

5114 DATA "Cerium","Ce",140
5116 DATA "Praseodymium","Pr",14
1
5118 DATA "Neodymium","Nd",144
5120 DATA "Promethium","Pm",146
5122 DATA "Samarium","Sm",150

```

```

number: "a": Number of Proton
s: "b": Number of neutrons: "
a-b": Number of electrons: "b

```

```

3080 PAUSE de: NEXT b: GO TO 120
5000 DATA "Hydrogen","H",1
5002 DATA "Helium","He",4
5004 DATA "Lithium","Li",7
5006 DATA "Beryllium","Be",9
5008 DATA "Boron","B",11
5010 DATA "Carbon","C",12
5012 DATA "Nitrogen","N",14
5014 DATA "Oxygen","O",16
5016 DATA "Fluorine","F",19
5018 DATA "Neon","Ne",20
5020 DATA "Sodium","Na",23
5022 DATA "Magnesium","Mg",24
5024 DATA "Aluminium","Al",27
5026 DATA "Silicon","Si",28
5028 DATA "Phosphorus","P",31

```

```

5030 DATA "Sulphur","S",32
5032 DATA "Chlorine","Cl",35
5034 DATA "Argon","Ar",40
5036 DATA "Potassium","K",39
5038 DATA "Calcium","Ca",40
5040 DATA "Scandium","Sc",45
5042 DATA "Titanium","Ti",48
5044 DATA "Vanadium","V",51
5046 DATA "Chromium","Cr",52
5048 DATA "Manganese","Mn",55
5050 DATA "Iron","Fe",56
5052 DATA "Cobalt","Co",59
5054 DATA "Nickel","Ni",59
5056 DATA "Copper","Cu",64
5058 DATA "Zinc","Zn",65
5060 DATA "Gallium","Ga",70
5062 DATA "Germanium","Ge",73
5064 DATA "Arsenic","As",75
5066 DATA "Selenium","Se",79
5068 DATA "Bromine","Br",80
5070 DATA "Krypton","Kr",84

```

```

5072 DATA "Rubidium","Rb",85
5074 DATA "Strontium","Sr",88
5076 DATA "Yttrium","Y",89
5078 DATA "Zirconium","Zr",91
5080 DATA "Niobium","Nb",93
5082 DATA "Molybdenum","Mo",96
5084 DATA "Technetium","Tc",98
5086 DATA "Ruthenium","Ru",102
5088 DATA "Rhodium","Rh",103
5090 DATA "Palladium","Pd",107
5092 DATA "Silver","Ag",108
5094 DATA "Cadmium","Cd",112
5096 DATA "Indium","In",115
5098 DATA "Tin","Sn",119
5100 DATA "Antimony","Sb",122
5102 DATA "Tellurium","Te",128
5104 DATA "Iodine","I",127
5106 DATA "Xenon","Xe",132
5108 DATA "Caesium","Cs",133
5110 DATA "Barium","Ba",138
5112 DATA "Lanthanum","La",139

```

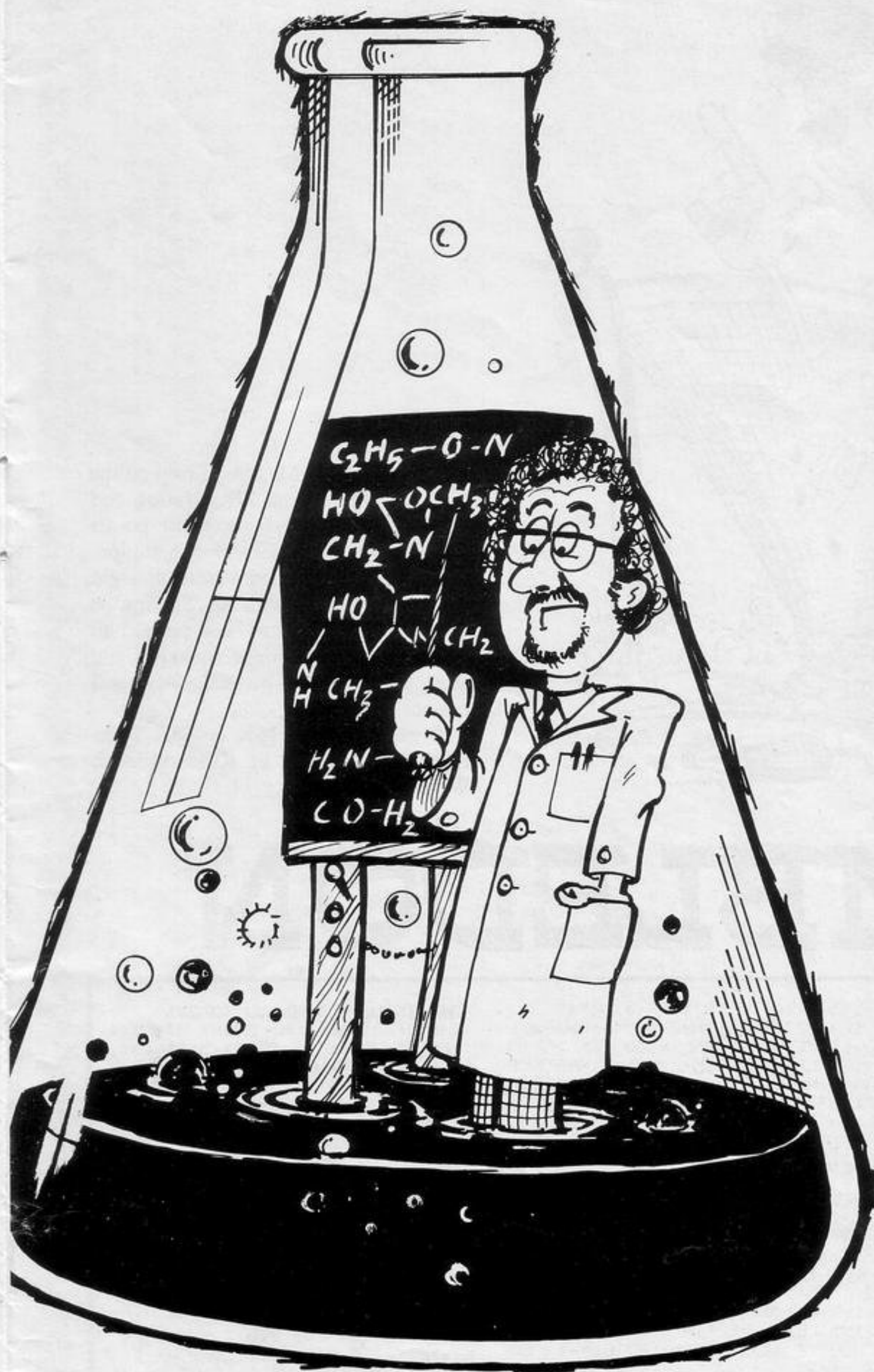
```

5114 DATA "Cerium","Ce",140
5116 DATA "Praseodymium","Pr",14
1
5118 DATA "Neodymium","Nd",144
5120 DATA "Promethium","Pm",146
5122 DATA "Samarium","Sm",150

```

# PERIODI





**C**HRISTOPHER EDE of Grimsby, South Humberside wrote **Periodic Table** for Spectrum owners who are studying chemistry. The program will print on-screen the entire periodic table, or a selected part of it. Each element is shown, together with its symbol, its mass numbers and the appropriate number of protons, neutrons and electrons.

The advantage the program has over a table in a book is that it will also test you on the entire periodic table or on any part of it.

5124	DATA	"Europium", "Eu", 152
5126	DATA	"Gadolinium", "Gd", 157
5128	DATA	"Terbium", "Tb", 159
5130	DATA	"Dysprosium", "Dy", 162
5132	DATA	"Holmium", "Ho", 165
5134	DATA	"Erbium", "Er", 167
5136	DATA	"Thulium", "Tm", 168
5138	DATA	"Ytterbium", "Yb", 173
5140	DATA	"Lutetium", "Lu", 175
5142	DATA	"Radium", "Ra", 226
5144	DATA	"Tantalum", "Ta", 181
5146	DATA	"Tungsten", "W", 184
5148	DATA	"Rhenium", "Re", 186
5150	DATA	"Osmium", "Os", 190
5152	DATA	"Iridium", "Ir", 193
5154	DATA	"Platinum", "Pt", 195
5156	DATA	"Gold", "Au", 197, 80
5158	DATA	"Mercury", "Hg", 201
5160	DATA	"Thallium", "Tl", 205
5162	DATA	"Lead", "Pb", 207
5164	DATA	"Bismuth", "Bi", 209
5166	DATA	"Polonium", "Po", 210
5168	DATA	"Astatine", "At", 210
5170	DATA	"Radon", "Rn", 222
5172	DATA	"Francium", "Fr", 223
5174	DATA	"Radium", "Ra", 226
5176	DATA	"Actinium", "Ac", 227
5178	DATA	"Thorium", "Th", 232
5180	DATA	"Protoactinium", "Pa", 231
5182	DATA	"Uranium", "U", 238
5184	DATA	"Neptunium", "Np", 237
5186	DATA	"Plutonium", "Pl", 238
5188	DATA	"Americium", "Am", 243
5190	DATA	"Curium", "Cm", 245
5192	DATA	"Berkelium", "Bk", 249
5194	DATA	"Californium", "Cf", 249
5196	DATA	"Einsteinium", "E", 255
5198	DATA	"Fermium", "Fm", 255
5200	DATA	"Mendelevium", "Mv", 256
5202	DATA	"Nobelium", "No", 255
5204	DATA	"Lawrencium", "Lw", 256

# GTABLE





# PATHWAY

**M**OVE AROUND the grid avoiding the blue squares but being sure to cross all the yellow squares before leaving by the exit. The catch is that all moves must be entered in advance. Enter them as "F"—forward, "B"—backward, "L"—left, "R"—right, and "S" when you have entered your moves to start your arrow moving.

**Pathway** runs on the 16K Spectrum and was written by Kevin Macdonald of Sheffield.

```

40 POKE 23658,8
50 LET Y=1
60 LET SC=0
70 LET J=0
80 LET PH=18
90 GO SUB 760
100 FOR a=USR "a" TO USR "D"+7
110 READ a: POKE a,a: NEXT a
120 DATA BIN 11111111,BIN 10000
001,BIN 10000001,BIN 10000001,BI
N 10000001,BIN 10000001,BIN 1000
0001,BIN 11111111
130 DATA BIN 00000000,BIN 00010
00,BIN 00000100,BIN 01111110,BIN
00000100,BIN 00001000,0,0
140 DATA 0,BIN 00010000,BIN 001
00000,BIN 01111110,BIN 00100000,
BIN 00010000,0,0
150 DATA 0,BIN 00001000,BIN 000
01000,BIN 00001000,BIN 00101010,
BIN 00011100,BIN 00001000,0
160 FOR b=0 TO 18
170 PRINT AT B,0: INK 0: BRIGHT
1:"AAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAA": BRIGHT 0
180 NEXT b
200 FOR A=1 TO 80+(X*3*10)
210 LET A1=INT (RND*18)
220 LET A2=INT (RND*32)
230 PRINT AT A1,A2: INK 1: PAPE
R 1: "."
240 NEXT A
250 FOR A=1 TO 3
260 LET Y1=INT (RND*31)+1
270 LET Y2=INT (RND*17)
280 PRINT AT Y2,Y1: PAPER 6: IN
K 6: "T"
290 NEXT A
295 PRINT AT 0,0: INK 0: PAPER
0: "+"

```

```

300 REM ENTER DIRECTIONS
310 DIM D$(200,1)
320 PRINT AT 21,0: FLASH 1: "
PRESS ENTER TO START "
330 PAUSE 0
340 PRINT AT 21,0: "
"
350 LET PV=INT (RND*31)+1
360 PRINT AT 18,PV: FLASH 1: "↑"
370 PRINT AT 20,0:
380 FOR A=1 TO 200
390 PAUSE 0
400 IF INKEY$="L" OR INKEY$="S"
OR INKEY$="R" OR INKEY$="F" OR
INKEY$="B" THEN GO TO 430
410 IF INKEY$=" " THEN GO TO 39
0
420 GO TO 390
430 IF INKEY$="S" THEN GO TO 48
0
440 LET D$(A)=INKEY$
450 PRINT INKEY$: IF A=31 OR A
=62 OR A=93 OR A=124 OR A=165 TH
EN PRINT AT 20,0: "
": PRINT AT 20
,0:
460 BEEP .05,-10: BEEP .05,10
470 NEXT A
480 LET A1=A
490 PRINT AT 20,0: "
"
500 FOR A=1 TO 200
520 LET PHL=PH: LET PVL=PV
530 IF A=A1 THEN GO TO 670
540 IF D$(A)="F" THEN LET PH=PH
-1: LET O$="↑"
550 IF D$(A)="R" THEN LET PV=PV
+1: LET O$="B"
560 IF D$(A)="L" THEN LET PV=PV

```

```

-1: LET O$="C"
570 IF D$(A)="B" THEN LET PH=PH
+1: LET O$="D"
580 IF SCREEN$(PH,PV)=". " THEN
LET Y=0
590 IF SCREEN$(PH,PV)="T" THEN
LET SC=SC+1: BEEP .5,40
600 IF SCREEN$(PH,PV)="+ " AND
SC=3 THEN GO TO 710
610 PRINT OVER 1: AT PH,PV: O$
620 PRINT AT 19,0: D$(A)
630 PRINT AT PHL,PVL: BRIGHT 1:
PAPER 7: "A"
640 IF Y=0 THEN GO TO 670
650 BEEP .03,30: BEEP .03,0: BE
EP .03,30
660 NEXT A
670 PRINT AT 21,0: FLASH 1: PAP
ER 6: INK 0: " YOU HAVE CR
ASHED "
680 BEEP .3,10: BEEP .3,20
690 IF INKEY$="" THEN GO TO 670
700 RUN
710 PRINT AT 21,0: FLASH 1: INK
1: PAPER 6: " WELL DO
NE "
720 BEEP .3,30: BEEP .3,35
730 IF INKEY$="" THEN GO TO 710
740 PRINT AT 20,11: "SCORE="A
750 RUN
760 CLS
770 PRINT " ENTER DIFFICULT
Y NO.": PRINT
780 PRINT " 1-EASY": PRINT "
2-HARD": PRINT " 3-IMPOSSIBLE"
790 PAUSE 0
800 LET X=VAL INKEY$
810 RETURN

```





# DEPLOYMENT STRATEGY

**D**EPLOYMENT STRATEGY is a game of tactics and cunning which was sent by Jerome Lasowski of London SE6 for use on the 16K ZX-81.

The enemy's regiments are lined-up on the battlefield at the left of the screen. Your less-willing soldiers arrive, a regiment at a time and, by keying-in a

letter between A and J, you position them on the front line where they fight against the equivalent enemy force and the stronger wins a point.

The victorious regiment then moves to the right of the screen, where it takes position for the next battle.

As a further test of your skill you must estimate before each battle how

many fights your troops will win. A correct answer earns three bonus points, an incorrect one means you lose three points.

The war ends when either you or your enemy has a lead of 10 or more points at the end of a battle.

Lower-case letters in brackets are graphics instructions.

```

5 DIM A(44)
10 DIM A$(2,9)
15 LET A$(1)="(nine graphic Hs
)"
20 LET A$(2)="(ten inverse SPA
CEs)"
25 RAND 0
30 FAST
40 CLS
50 LET A(41)=A(41)+1
60 PRINT AT 0,6;"DEPLOYMENT ST
RATEGY",,TAB 27;"NEXT",TAB 9;"B
ATTLE",A(41),TAB 26;"BATTLE"
70 LET B$=" THE ENEMY"
80 LET A(43)=0
90 LET A(44)=0
95 FOR P=9 TO 40
100 PRINT AT 15,P-9;".",AT 19,P
-9;". "
105 NEXT P
110 GOSUB 600
120 LET I=1
130 GOSUB 800
140 LET I=21
150 GOSUB 800
155 SLOW
160 PRINT AT 21,2;"YOUR ESTIMAT
E PLEASE, GENERAL"
170 INPUT EST
180 IF EST<0 OR EST>10 THEN GOT
O 170
190 PRINT AT 17,4;"ESTIM ",EST
200 FOR J=21 TO 30
210 PRINT AT 21,2;"
"
220 LET P=J
230 IF A(P)<>0 THEN GOTO 320

```

```

240 LET VAL=INT (RND*10)
250 PRINT AT 21,2;"REINFORCEMEN
TS: ",A$(1,1 TO VAL),VAL
260 INPUT P$
270 LET P=CODE P$-17
280 IF P<21 OR P>30 THEN GOTO 2
60
290 IF A(P-20)=0 THEN GOTO 260
300 LET A(P)=VAL
310 GOSUB 1000
320 IF A(P)=A(P-20) THEN GOTO 4
00
330 LET H=0
340 IF A(P)>A(P-20) THEN LET H=
1
350 LET A(43)=A(43)+H
360 LET A(44)=A(44)+1-H
370 PRINT AT 4+A(44)-H,27+4*H;C
HR$(A(P+(H-1)*20)+28-128*(H-1))
380 LET A(A(44)-H)+10+H*20)=A(P+
(H-1)*20)
390 GOSUB 600
400 PRINT AT P-16,13;" "
410 LET A(P-20)=0
420 LET A(P)=0
430 NEXT J
440 LET H=-1
450 IF A(43)=EST THEN LET H=2
460 PRINT AT 21,2;"LOSE 3 POINT
S FOR ESTIMATE"
470 IF A(43)=EST THEN PRINT AT
21,2;"GAIN"
480 FOR J=1 TO 40
490 NEXT J
500 GOSUB 600
510 IF ABS A(42)<10 THEN GOTO 3
0

```

```

520 PRINT AT 21,2;"END OF WAR -
YOU LOSE "
530 IF A(42)>0 THEN PRINT AT 21
,19;"WIN "
540 STOP
600 IF P>35 THEN GOTO 630
610 LET A(42)=A(42)+2*H-1
620 PRINT AT 18,4;"GAINS ",A(43
)
630 LET NME=(ABS A(42)-A(42))/2
640 LET YOU=(ABS A(42)+A(42))/2
650 PRINT AT 16,18;"SCORE:",TAB
20;"ENEMY ",NME,TAB 20;"YOU "
YOU,
660 RETURN
800 FOR P=I TO I+9
810 IF A(P+10)=0 AND P>20 THEN
RETURN
820 IF A(P+10)=0 THEN LET A(P+1
0)=INT (RND*8+2)
830 LET A(P)=A(P+10)
840 LET A(P+10)=0
850 GOSUB 1000
860 NEXT P
870 RETURN
1000 IF I=1 THEN PRINT AT P+4,0;
B$(P),".",TAB 13;CHR$(P+37),TAB
25;".",TAB 29;CHR$(P+37)
1010 PRINT AT P-I+5,13+SGN (I-5)
*(A(P)+2),A(P);
1020 IF I=21 THEN PRINT AT P-16,
14;" "
1030 PRINT A$(1+(21-I)/20,1 TO A
(P))
1040 RETURN

```



# TIMESLIDE

```

2 LET FED=0
3 LET I=0
4 LET SET=1000
5 LET INIT=9100
6 GOSUB INIT
14 LET A$=""
17 CLS
20 LET NU=0
22 LET EA=0
24 LET WE=0
26 LET SO=0
27 LET UP=0
28 LET DO=0
30 LET I$=""
32 FAST
35 GOSUB SET
40 CLS
45 PRINT I$
50 LET FOUND=0
52 LET P=0
60 GOTO 9600
70 SLOW
80 GOTO 100
90 IF A$="LOOK" AND NOT FOUND
THEN PRINT "I CAN'T SEE ANYTHIN
G SPECIAL"
100 PRINT "WHAT SHALL I DO ?"
101 SLOW
102 INPUT J$
103 IF J$="" THEN GOTO 100
104 CLS
106 LET A$=RND
107 IF SET=1240 AND A$.95 THEN
PRINT "THE DOG AWOKE AND KILLED
YOU"
108 IF SET=1240 AND A$.95 THEN
GOTO 9000
109 GOSUB 500
110 PRINT A$," ",B$
111 IF B$="" THEN GOTO 115
112 IF B$(1)=" " THEN LET B$=B$
(2 TO )
113 IF A$="TAKE" OR A$="GET" OR
A$="PUT" OR A$="DROP" THEN LET
B$=B$+" "
114 IF B$=" " THEN GOTO 112
115 IF A$="N" AND NU<>0 THEN LE
T SET=NU
120 IF A$="S" AND SO<>0 THEN LE
T SET=SO
130 IF A$="W" AND WE<>0 THEN LE
T SET=WE
140 IF A$="E" AND EA<>0 THEN LE
T SET=EA
150 IF A$="D" AND DO<>0 THEN LE
T SET=DO
155 IF A$="N" OR A$="S" OR A$="
W" OR A$="E" OR A$="D" THEN GOTO
20
156 IF A$="U" AND SET<>1210 AND
SET<>1240 AND SET<>1450 THEN GO
TO 158
157 IF A$="U" THEN GOTO 6000
158 FAST
160 IF A$="R" THEN GOTO 40
170 IF A$="HELP" THEN PRINT "NO

```

```

CHANCE MATE"
175 IF A$="HELP" THEN GOTO 100
180 IF A$="TAKE" OR A$="GET" TH
EN GOTO 2000
185 IF A$="SAVE" THEN GOTO 9800
190 IF A$="PUT" OR A$="DROP" TH
EN GOTO 4500
200 IF A$="OPEN" THEN GOTO 2500
205 IF A$="FEED" THEN GOTO 3500
210 IF A$="LOOK">= GOTO 60
215 IF A$="SWIM" THEN GOTO 4000
225 IF A$="LIGHT" THEN GOTO 750
0
230 IF A$="READ" THEN GOTO 6500
240 IF A$="UNLOCK" THEN GOTO 30
00
250 IF A$="I" THEN GOSUB 5500
255 IF A$="I" THEN GOTO 100
260 IF A$="INSERT" THEN GOTO 70
00
275 IF A$="QUIT" THEN GOTO 9000
280 IF A$="SAVE" THEN GOSUB 990
0
490 IF LEN A$=1 THEN PRINT "I C
AN""T "
491 IF LEN A$=1 THEN GOTO 100
498 PRINT "I CAN""T ",A$," ",B$
499 GOTO 100
500 IF J$(1)=" " AND LEN J$>1 T
HEN LET J$=J$(2 TO )
501 IF J$(1)=" " THEN GOTO 500
502 LET SP=0
503 LET A$=""
504 LET B$=""
505 FOR N=1 TO LEN J$
507 IF J$(N)=" " AND NOT SP THE
N LET SP=1
508 IF J$(N)=" " AND NOT SP THE
N GOTO 520
510 IF SP=0 THEN LET A$=A$+J$(N
)
515 IF SP>0 THEN LET B$=B$+J$(N
)
520 NEXT N
530 RETURN
1000 LET I$="YOU ARE IN A FOREST
. THERE ARE PATHS LEADING NORTH
AND SOUTH"
1010 LET NU=1390
1015 LET SO=1030
1020 RETURN
1030 LET I$="YOU ARE IN A FOREST
, WITH PATHS LEADING NORTH AND E
AST AND A CLEARING TO THE WES
T"
1035 LET NO=1000
1040 LET EA=1090
1045 LET WE=1060
1050 RETURN
1060 LET I$="YOU ARE IN A CLEARI
NG. IN THE CENTRE IS A TIME MA
CHINE, WHICH LACKS A POWER SOURC
E. EXIT EAST"
1070 LET EA=1030
1080 RETURN
1090 LET I$="YOU ARE IN A FOREST

```

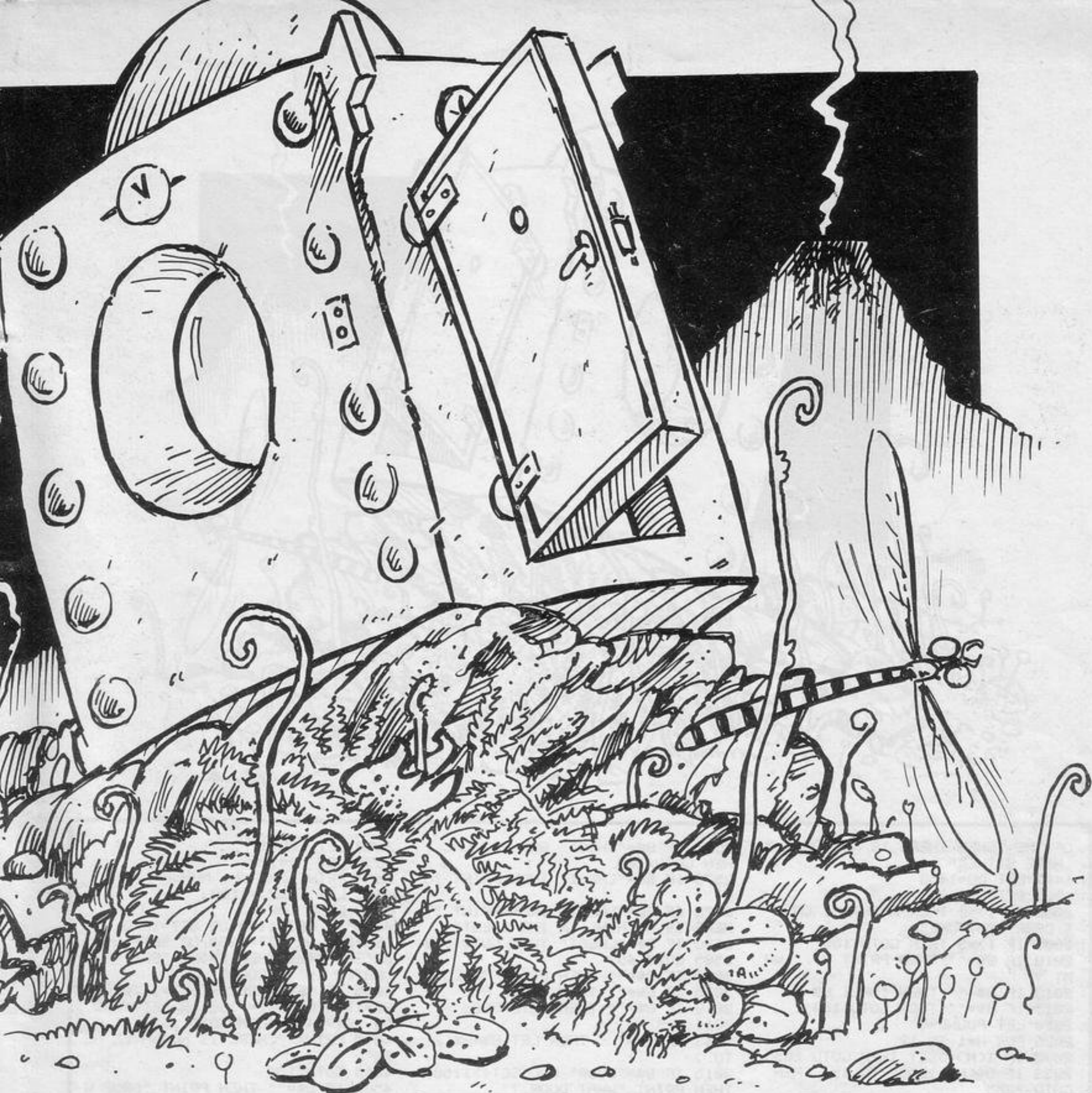


```

. THERE IS A PATH RUNNING EAST-W
EST"
1100 LET WE=1030
1105 LET EA=1120
1110 RETURN
1120 LET I$="YOU ARE IN THE FORE
ST. THROUGH A GAP TO THE NORTH
YOU CAN SEE ALAKE. THE PATH RUNS
EAST-WEST AND THERE IS A CAVE
TO THE SOUTH"
1125 LET EA=1300
1130 LET WE=1090
1135 LET SO=1150
1140 RETURN
1150 LET I$="YOU ARE IN A SMALL
CAVE. DAYLIGHT IS TO THE
NORTH. THERE IS A DOOR TO THE WE
ST AND AN OPENING TO THE SOUT
H"
1160 LET SO=1180
1165 LET NO=1120
1170 RETURN
1180 LET I$="YOU ARE IN A LARGE
CAVERN. THERE IS A CHEST LYING IN
ONE CORNER, AND A SKELETON IN A
NOTHER. THE ONLY EXIT IS TO THE
NORTH"
1190 LET NO=1150
1200 RETURN
1210 LET I$="I CAN""T SEE A THIN
G"

```





**K**EITH BEVAN, aged 14, of Stevenage, Herts wrote **Timeslide**, a 16K ZX-81 adventure game. Your time machine crashes in the dim and distant past. To return to your own time you must repair your craft. With trial and error, make a plan of your environment and collect the objects you think may be of use. The computer will accept direct commands, i.e., verbs followed by nouns. These are:

Take or get	Drop or put
Open	Feed
Look	Swim
Light	Read
Unlock	Insert
Quit	

The abbreviations for directions are N,S,E,W, and D for descend and C for climb. I will bring up the inventory and R repeats the description. Bevan sold his ZX-81 recently, this is his final offering before he upgrades to a Spectrum.

```

1220 LET UP=1150
1230 RETURN
1240 LET I$="YOU ARE IN A LONG PASSAGE. YOU CAN HEAR THE SOUND OF DRIPPING WATER. TO THE NORTH IS A FLIGHT OF STAIRS WITH A LARGE DOG SLEEPING ON THE BOTTOM STEP"
1250 LET SO=1210
1260 RETURN
1270 LET I$="YOU ARE ON AN ISLAND IN THE CENTRE OF THE LAKE. THERE IS A HOLE IN THE GROUND WITH A STAIR-CASE IN IT"
1280 LET DO=1240
1290 RETURN
1300 LET I$="YOU ARE BESIDE A LAKE. THERE IS AN ISLAND IN THE MIDDLE OF THE LAKE. TO THE WEST IS THE FOREST AND TO THE NORTH IS A ROCKERY"
1310 LET NO=1330
1315 LET WE=1120
1320 RETURN
1330 LET I$="YOU ARE IN A ROCKERY. THE LAKE IS TO THE WEST, AND THERE ARE SOME REEDS TO THE NORTH"
1340 LET NO=1360
1345 LET SO=1300

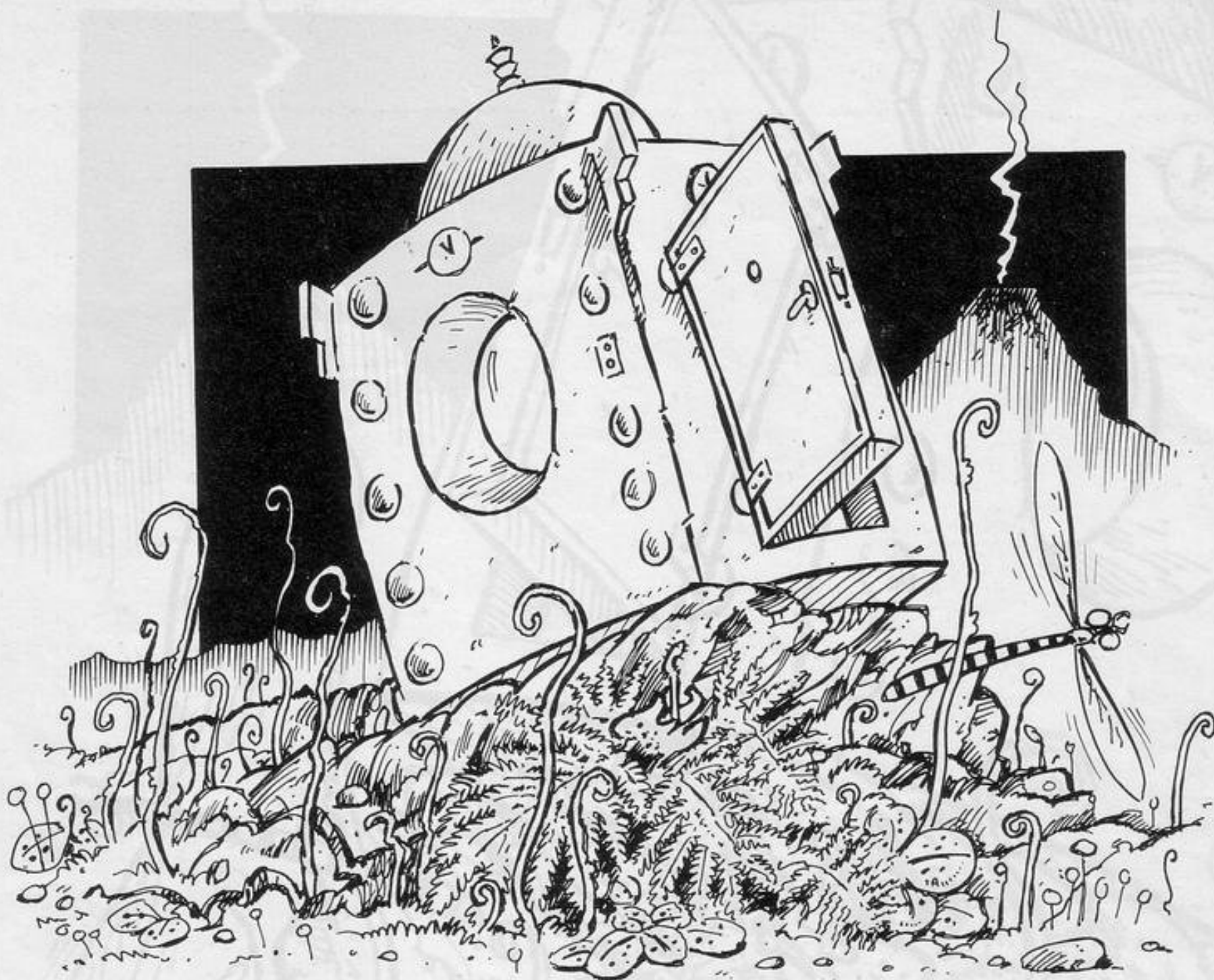
```

```

1350 RETURN
1360 CLS
1365 PRINT "I HAVE FALLEN INTO A SWAMP. GLUG.....GLUG....GLUG....."
1370 GOTO 9000
1390 LET I$="YOU ARE IN A SHRUBBERY. THE FOREST IS TO THE SOUTH. THE LAKE IS TO THE EAST, AND A MEADOW IS TO THE NORTH"
1400 LET NO=1420
1405 LET SO=1000
1410 RETURN
1420 LET I$="YOU ARE IN A MEADOW. THE LAKE IS TO THE SOUTH-EAST. TO THE SOUTH IS THE SHRUBBERY AND TO THE EAST IS A TOWER"
1430 LET EA=1450
1435 LET SO=1390
1440 RETURN
1450 LET I$="YOU ARE AT THE FOOT OF A TOWER. THERE IS NO DOOR TO BE SEEN. TO THE WEST IS THE MEADOW AND TO THE EAST ARE SOME REEDS."
1455 LET EA=1360
1460 LET WE=1420
1465 LET UP=1480
1470 RETURN
1480 LET I$="YOU ARE AT THE TOP

```





```

OF THE TOWER THERE IS NO DOOR UP
HERE EITHER"
1490 LET DO=1450
1500 RETURN
2000 IF I>=5 THEN PRINT "I CAN""
T CARRY ANYMORE"
2005 IF I>=5 THEN GOTO 100
2010 IF B$="" THEN PRINT A$;" WH
AT ?"
2013 IF B$="" THEN INPUT B$
2015 IF B$="" THEN GOTO 100
2020 LET FOUND=0
2025 FOR N=1 TO 12
2030 IF I(N)<>SET THEN GOTO 2055
2033 IF O$(N)<>B$(1 TO 15) THEN
GOTO 2055
2035 PRINT "OK..."
2040 LET FOUND=1
2045 LET I(N)=0
2050 LET I=I+1
2055 NEXT N
2060 IF FOUND=0 THEN GOTO 499
2065 GOTO 100
2500 IF B$="" THEN PRINT "OPEN W
HAT ?"
2505 IF B$="" THEN INPUT B$
2510 IF B$="" THEN GOTO 2500
2511 CLS
2515 IF B$="DOOR" AND SET<>1150
THEN PRINT "WHAT DOOR"
2520 IF B$="DOOR" AND SET<>1150
THEN GOTO 499
2525 IF B$="DOOR" AND UND=0 THEN
PRINT "IT""S LOCKED DUMBO.."
2530 IF B$="DOOR" AND UND=0 THEN
GOTO 499
2535 IF B$="DOOR" THEN PRINT "TH
ERE IS A STAIR GOING DOWN."
2540 IF B$="DOOR" THEN LET DO=12
10
2545 IF B$="DOOR" THEN GOTO 100
2550 IF B$="CHEST" AND SET<>1180
THEN PRINT "I SEE NO CHEST"
2555 IF B$="CHEST" AND SET<>1180
THEN GOTO 100
2560 IF B$="CHEST" AND NOT UNC T
HEN PRINT "IT""S LOCKED"

```

```

2565 IF B$="CHEST" AND NOT UNC T
HEN GOTO 100
2570 IF B$="CHEST" THEN PRINT "O
K"
2575 IF B$="CHEST" THEN PRINT "T
HERE IS NOTHING IN THE CHEST"
2580 IF B$="CHEST" THEN GOTO 100
2585 GOTO 499
3000 IF B$="" THEN PRINT "UNLOCK
3005 IF B$="" THEN INPUT B$
3010 IF B$="" THEN GOTO 3000
3011 CLS
3013 IF B$="" THEN LET B$=B$(2
TO )
3015 IF B$="DOOR" AND SET<>1150
THEN PRINT "WHAT DOOR ?"
3020 IF B$="DOOR" AND SET<>1150
THEN GOTO 100
3025 IF I(7)>0 THEN GOTO 499
3030 IF B$="DOOR" THEN LET UND=1
3035 IF UND=1 THEN PRINT "CLICK
"
3040 IF UND=1 THEN GOTO 100
3045 IF B$="CHEST" AND SET<>1180
THEN PRINT "WHAT CHEST ?"
3050 IF B$="CHEST" AND SET<>1180
THEN GOTO 100
3055 IF B$="CHEST" THEN LET UNC=
1
3060 IF B$="CHEST" THEN PRINT "C
LUNK"
3065 IF B$="CHEST" THEN GOTO 100
3070 GOTO 499
3500 IF B$="" THEN PRINT "FEED W
HAT ?"
3505 IF B$="" THEN INPUT B$
3510 IF B$="" THEN GOTO 3500
3515 IF B$<>"DOG" THEN PRINT "DO
N""T BE SILLY"
3520 IF B$<>"DOG" THEN GOTO 499
3525 IF SET<>1240 THEN PRINT "TH
ERE IS NO DOG HERE"
3530 IF SET<>1240 THEN GOTO 100
3535 IF I(12)>0 THEN PRINT "I HA
VE NO DOG FOOD"
3540 IF I(12)>0 THEN GOTO 100
3545 LET I=I-1

```

```

3550 LET FED=1
3555 LET UP=1270
3560 PRINT "MUNCH, MUNCH"
3565 LET I(12)=1180
3570 GOTO 100
4000~IF SET=1120 OR SET=1270 OR
SE=1300 OR SET=1330 OR SET=1390
OR SET=1420 THEN PRINT "BRR. THE
WATER IS TO COLD"
4005 IF SET=1120 OR SET=1270 OR
SE=1300 OR SET=1330 OR SET=1390
OR SET=1420 THEN GOTO 100
4010 PRINT "THERE IS NO WATER HE
RE"
4015 GOTO 100
4500 IF B$="" THEN PRINT "DROP W
HAT ?"
4502 IF B$="" THEN INPUT B$
4503 IF B$="" THEN GOTO 4500
4505 FOR N=1 TO 12
4507 IF B$(1)= " " THEN LET B$=B$
(2 TO )
4508 IF B$(1)= " " THEN GOTO 4507
4510 IF I(N)<>0 THEN GOTO 4545
4520 IF O$(N)<>B$(1 TO 15) THEN
GOTO 4545
4530 LET I(N)=SET
4532 LET FOUND=1
4535 PRINT "OK..."
4540 LET I=I-1
4545 NEXT N
4555 GOTO 100
5500 LET FOUND=0
5505 FOR N=1 TO 12
5510 IF I(N)<>0 THEN GOTO 5530
5515 IF NOT FOUND THEN PRINT "I
HAVE THE FOLLOWING.."
5520 PRINT TAB 10;" A ";O$(N)
5525 LET FOUND=1
5530 NEXT N
5555 RETURN
6000 IF SET=1240 THEN GOTO 6100
6002 IF SET=1210 THEN LET SET=UP
6005 IF SET<>1450 THEN LET SET=U
P
6010 IF SET=UP THEN GOTO 20
6020 IF I(3)>0 THEN PRINT "THERE

```



```

IS NO WAY UP"
6030 IF I(3)>0 THEN GOTO 100
6040 IF UP>0 THEN LET SET=UP
6050 IF SET=UP THEN GOTO 20
6060 PRINT "I CAN'T GO UP"
6070 GOTO 100
6100 IF FED=0 THEN PRINT "THERE"
"IS A DOG IN THE WAY"
6110 IF FED=0 THEN GOTO 100
6120 LET SET=1270
6130 GOTO 20
6500 IF B$="" THEN PRINT A$; " W
HAT ?"
6510 IF B$="" THEN INPUT B$
6520 IF B$="" THEN GOTO 6500
6530 IF B$<>"MANUSCRIPT" THEN GO
TO 499
6540 IF I(11)>0 AND SET<>1480 TH
EN PRINT "I DO NOT HAVE ",B$
6550 IF I(11)>0 AND SET<>1480 TH
EN GOTO 100
6555 CLS
6560 PRINT "THE MANUSCRIPT SAYS:
SLAND "
PP3 - TM I
6570 GOTO 100
7000 IF SET<>1060 OR I(9) THEN G
OTO 499
7010 PRINT "YOU HAVE SUCCESSFULLY
COMPLETED THE ADVENTURE."
7015 PRINT
7020 PRINT "YOUR TIME SHIP TAKES
OF FOR YOUR OWN TIME."
7025 PRINT AT 14,12;"(6*isp)"
7026 PRINT AT 16,12;"(6*isp)"
7027 PRINT AT 15,12;"(isp)";TAB
17;"(isp)"
7030 LET Z=INT (RND*250)+1995
7040 FOR A=2003 TO 1983 STEP -1
7050 PRINT AT 15,13;A

```

```

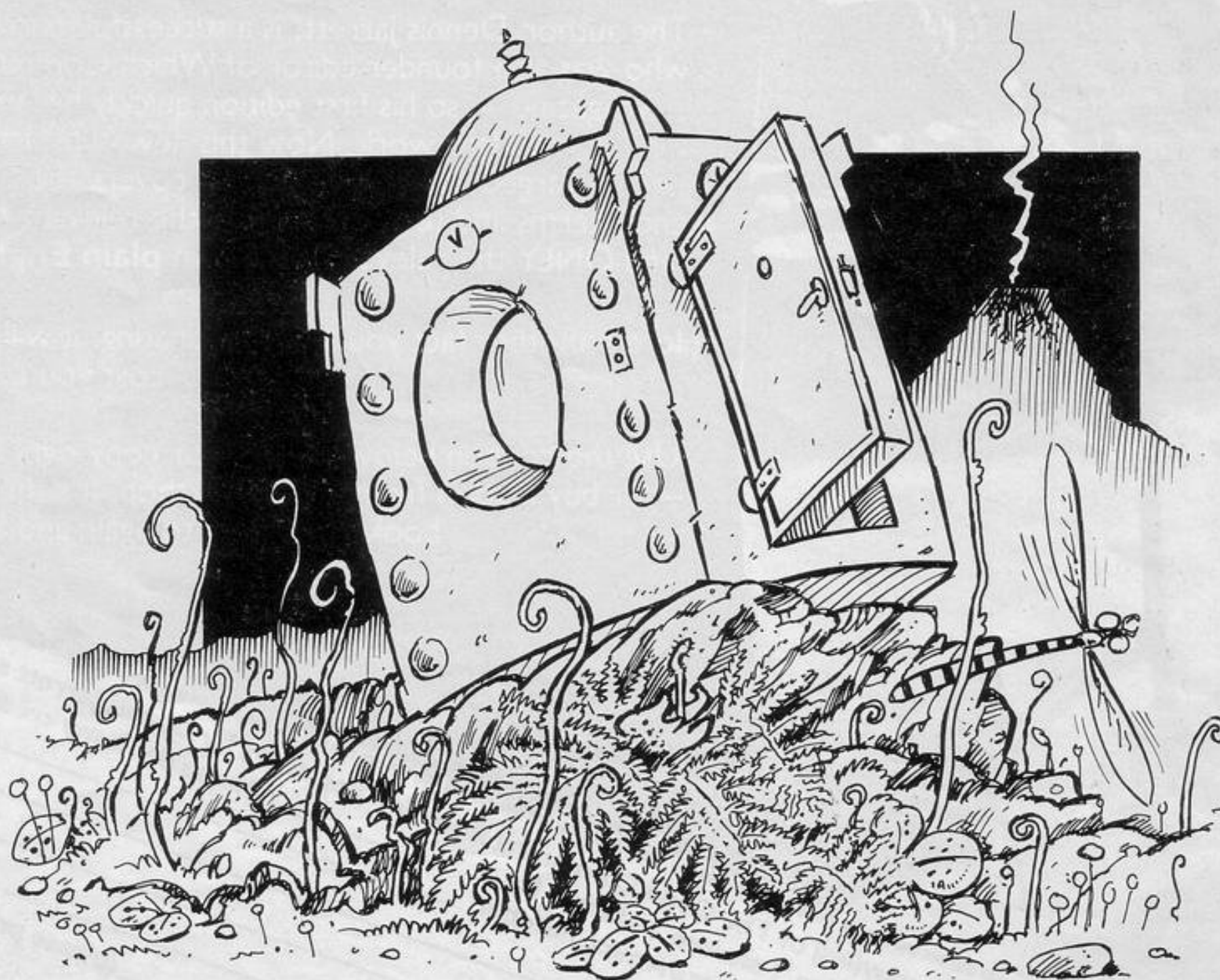
7060 NEXT A
7070 PRINT
7100 GOTO 9000
7500 IF B$="" THEN PRINT "LIGHT
WHAT ?"
7510 IF B$="" THEN INPUT B$
7520 IF B$="" THEN GOTO 7500
7530 IF I(8)>0 THEN GOTO 499
7540 IF SET=1210 THEN LET NO=124
0
7550 IF NO>0 THEN PRINT "YOU ARE
IN A SMALL ROOM. THERE IS A ST
AIR CASE TO THE EAST AND A DAMP
PASSAGE TO THE NORTH."
7560 IF NO<>0 THEN GOTO 100
7570 PRINT "THAT DIDN'T DO MUCH
GOOD"
7580 GOTO 100
8000 CLS
8010 PRINT "TIME
SWITCH
=====
8020 PRINT
8030 PRINT
8040~PRINT " YOU ARE STRANDED
IN THE DIM AND DISTANT PAST. YO
U MUST FIND YOUR WAY BACK TO YOU
R OWN TIME USING WHAT YOU CAN F
IND ON YOUR JOURNEY"
8050 PRINT AT 18,4;"PRESS A KEY
TO START"
8060 IF INKEY$="" THEN GOTO 8060
8070 GOTO 9500
9000 PRINT "DO YOU WANT TO TRY A
GAIN Y OR N"
9010 INPUT B$
9020 IF B$="Y" THEN RUN
9030 STOP
9100 FAST
9101 CLS
9110 DIM I(12)

```

```

9120 DIM O$(12,15)
9130 FOR N=1 TO 12
9140 LET X=INT (RND*15)
9145 LET I(N)=(X*30)+1000
9147 IF I(N)=1360 THEN GOTO 9140
9148~IF I(N)>1200 AND I(N)<1271
THEN GOTO 9140
9150 NEXT N
9160 LET I(9)=1270
9170 LET I(7)=1480
9180 LET I(11)=1480
9190 LET I(3)=1060
9200 LET O$(1)="ROPE"
9210 LET O$(2)="ROCK"
9220 LET O$(3)="LADDER"
9230 LET O$(4)="GOLD RING"
9240 LET O$(5)="GUN"
9250 LET O$(6)="13 AMP PLUG"
9260 LET O$(7)="GOLDEN KEY"
9280 LET O$(8)="TORCH"
9290 LET O$(9)="BATTERY"
9300 LET O$(10)="LOG"
9310 LET O$(11)="MANUSCRIPT"
9320 LET O$(12)="MARROW-BONE"
9400 SLOW
9425 LET UNO=0
9475 LET UNC=0
9480 GOTO 8000
9500 RETURN
9600 FOR N=1 TO 12
9605 LET P=P+1
9610 IF I(N)=SET THEN GOTO 9630
9615 IF P=12 THEN GOTO 90
9620 GOTO 9650
9630 IF NOT FOUND THEN PRINT "I
CAN SEE A..."
9640 PRINT O$(N)
9650 NEXT N
9700 GOTO 100
9800 SAVE "Ts"
9900 GOTO 1

```





# PHOENIX ATTACK

**T**HREE TYPES of alien appear on your screen—a large ship, an orbiting alien and a descending alien. Move your laser base left with 5 and right with 8. Fire with 1. You gain 50 points for every orbiting alien destroyed, 100 points for every descending alien destroyed, and you lose 50 points for every descending alien which

reaches the ground. Each time the orbiting alien succeeds in crossing the screen it will begin again, slightly lower.

Once it is three-quarters of the way down the screen you will run out of time. The game will also end if a descending alien lands on your base.

The ship can be hit only when an

asterisk appears in the top left-hand corner of the screen. That means that your super laser is ready for its one shot of the game. The ship can be destroyed only by hitting the graphic A beneath it by pressing 0.

**Phoenix Attack** was written for the 16K ZX-81 by S McQuillan of Belfast, whose highest score so far is 12,200.

```

1 GOTO 5
2 SAVE "PHOENIX ATTACK"
3 GOSUB 2500
4 LET HI=0
10 LET SC=0
15 LET L=5
20 LET S=0
30 LET T=1
40 LET B=15
50 FOR F=0 TO 19
55 PRINT AT F,0;"(32*isp)"
60 NEXT F
70 PRINT "(4*isp;24*99;4*isp)"
80 PRINT "(isp;2*99;25*9h;2*99
isp)"
90 PRINT AT 0,10;"(11*97)"
91 PRINT AT 1,0;"(91) 0 0 0 0
0 0 (92)"
93 PRINT AT 2,0;"(isp;5*99;9t;
97;99;5*99)"
100 LET Y=INT (RND*27)+2
110 LET X=5
150 PRINT AT 19,B;"(isp;91;9r;1
sp)"
170 PRINT AT X,Y;"(99;9t)"
180 PRINT AT X,Y;"(2*isp)"
200 LET B=B+(INKEY#="8" AND B<2
7)-(INKEY#="5" AND B>0)
210 IF INKEY#="1" THEN GOSUB 15
00
220 LET X=X+1
250 IF X=19 THEN GOTO 2000
270 PRINT AT L,T;"(isp;91;92)"
280 LET T=T+1
290 IF T=27 THEN GOSUB 900
300 IF Y<17 THEN PRINT AT 3,15;
"(9h)"
310 IF INKEY#="0" THEN GOSUB 10
00
320 IF Y>=17 THEN PRINT AT 3,15;
"(isp)"
350 IF SC=1000 OR SC=1050 THEN
LET S=S+1
355 IF S=1 THEN PRINT AT 0,0;"
"
400 IF X=18 AND (B+1=Y OR B+1=Y
+1 OR B+2=Y) THEN GOTO 3000
500 GOTO 150
900 PRINT AT L,T;"(3*isp)"
910 LET T=1
920 LET L=L+2
930 IF L=15 THEN GOTO 3000
950 RETURN
1000 REM shoot at mother ship
1003 IF S<1 THEN RETURN
1005 LET M=10
1010 LET N=B+1
1020 PRINT AT 0,0;"(isp)"
1030 LET S=-300
1050 PRINT AT M,N;"(95)"
1055 PRINT AT M,N;"(isp)"
1070 LET M=M-3
1090 IF M=3 AND Y>=17 THEN RETUR
N
1095 IF M=3 AND Y<17 AND N<>15 T

```

```

HEN RETURN
1100 IF M=3 AND N=15 AND Y<17 TH
EN GOTO 4000
1200 GOTO 1050
1500 REM fire
1510 LET M=10
1520 LET N=B+1
1550 PRINT AT M,N;"(9e)"
1555 PRINT AT M,N;"(isp)"
1570 LET M=M-1
1585 PRINT AT X,Y;"(99;9t)"
1590 PRINT AT X,Y;"(2*isp)"
1600 IF N=Y+1 OR N=Y THEN GOTO 1
900
1610 IF N=T OR N=T+1 THEN GOTO 1
000
1620 LET X=X+1
1630 IF X=18 AND (B+1=Y OR B+1=Y
+1 OR B+2=Y) THEN GOTO 3000
1650 IF X=19 THEN GOTO 2000
1660 IF M=5 THEN RETURN
1750 GOTO 1550
1800 PRINT AT L,T;"50";AT L,T;"(
3*isp)"
1810 LET T=1
1820 LET SC=SC+50
1890 GOTO 150
1900 PRINT AT X,Y;"100";AT X,Y;"
(3*isp)"
1910 LET SC=SC+100
1990 GOTO 100
2000 REM missed one
2020 LET SC=SC-50
2030 IF SC<0 THEN LET SC=0
2050 GOTO 100
2500 REM start
2505 FOR F=0 TO 21
2510 PRINT "(32*isp)"
2520 NEXT F
2525 PRINT AT 1,5;" Phoenix a
ttack "
2530 PRINT AT 3,5;"out of deep s
pace falls"
2540 PRINT AT 5,4;"the aliens wh
ich you must"
2550 PRINT AT 7,4;"destroying t
o destroy the"
2560 PRINT AT 9,4;"orbiting alie
n over head"
2570 PRINT AT 11,4;"hovers the a
lien mother"
2580 PRINT AT 13,4;"ship destroy
it to end the"
2590 PRINT AT 15,4;"alien Plot
ove with key"
2600 PRINT AT 17,4;"5 and 8 and
shoot with 1"
2610 PRINT AT 20,8;"good luck"
2620 PRINT AT 20,8;"(10*isp)"
2630 PRINT AT 19,8;"good luck"
2640 PRINT AT 19,8;"(10*isp)"
2650 IF INKEY#="" THEN GOTO 2610
2660 RETURN
3000 REM game over
3010 CLS
3020 PRINT AT 5,0;"* S C O R E *

```

```

H I S C O R E *
3022 PRINT "*****"
*****"
3025 PRINT AT 7,5;SC
3030 IF SC>=HI THEN PRINT AT 17,
5;"NEW HIGH SCORE"
3035 IF SC>=HI THEN INPUT B#
3050 IF SC>=HI THEN LET HI=SC
3060 PRINT AT 7,12;"* ";B#;"..."
;HI
3080 PAUSE 200
3090 CLS
3100 PRINT AT 1,3;"WE, THE ALIEN
S, CHALLENGE YOU TO ANOTHE
R GAME."
3110 PRINT AT 5,4;"PRESS ANY KE
Y TO RESET"
3120 PRINT AT 7,5;"...IF YOU DAR
E."
3130 IF INKEY#("<") THEN GOTO 10
3200 GOTO 3130
3900 STOP
4000 REM mother ship destroyed
4010 LET SC=SC+1000
4020 PRINT AT 9,9;"bonus'1000"
4030 PRINT AT 11,4;"alien Plot d
estroyed"
4035 PRINT AT 13,7;"in this sect
or
4040 FOR F=1 TO 30
4050 LET X=INT (RND*23)+6
4055 LET A=INT (RND*24)+8
4057 IF X>23 THEN LET X=15
4058 IF A>24 THEN LET A=15
4060 LET Y=INT (RND*4)
4065 LET B=INT (RND*4)
4070 PRINT AT Y,X;"(9t;9w)"
4077 PRINT AT B,A;"(isp)"
4080 PRINT AT Y,A;"(98)"
4090 PRINT AT B,X;"(9r)"
4100 NEXT F
4110 FOR F=0 TO 14
4115 PRINT AT F,2;"(23*isp)"
4117 NEXT F
4120 PRINT AT 0,5;"do you wish t
o go to";AT 10,4;"another sector
! (y\n)"
4130 INPUT Z#
4135 IF Z#="Y" THEN GOTO 4200
4150 CLS
4160 GOTO 3000
4200 PRINT AT 8,5;"(24*isp)"
4205 PRINT AT 10,4;"(27*isp)"
4210 LET A=19
4215 LET B=15
4220 PRINT AT 7,10;"warP drive"
4230 PRINT AT A,B;"(3*isp)"
4240 LET A=A-1
4245 IF A=7 THEN GOTO 4300
4250 PRINT AT A,B;"(91;9r)"
4260 GOTO 4230
4300 REM new sector
4310 PRINT AT A,10;"(2*isp;9< ;9<
;9w;99;9e;9> ;9> ;2*isp)"
4320 LET S=0
4330 IF RND<=0.5 THEN LET S=1
4350 GOTO 30

```

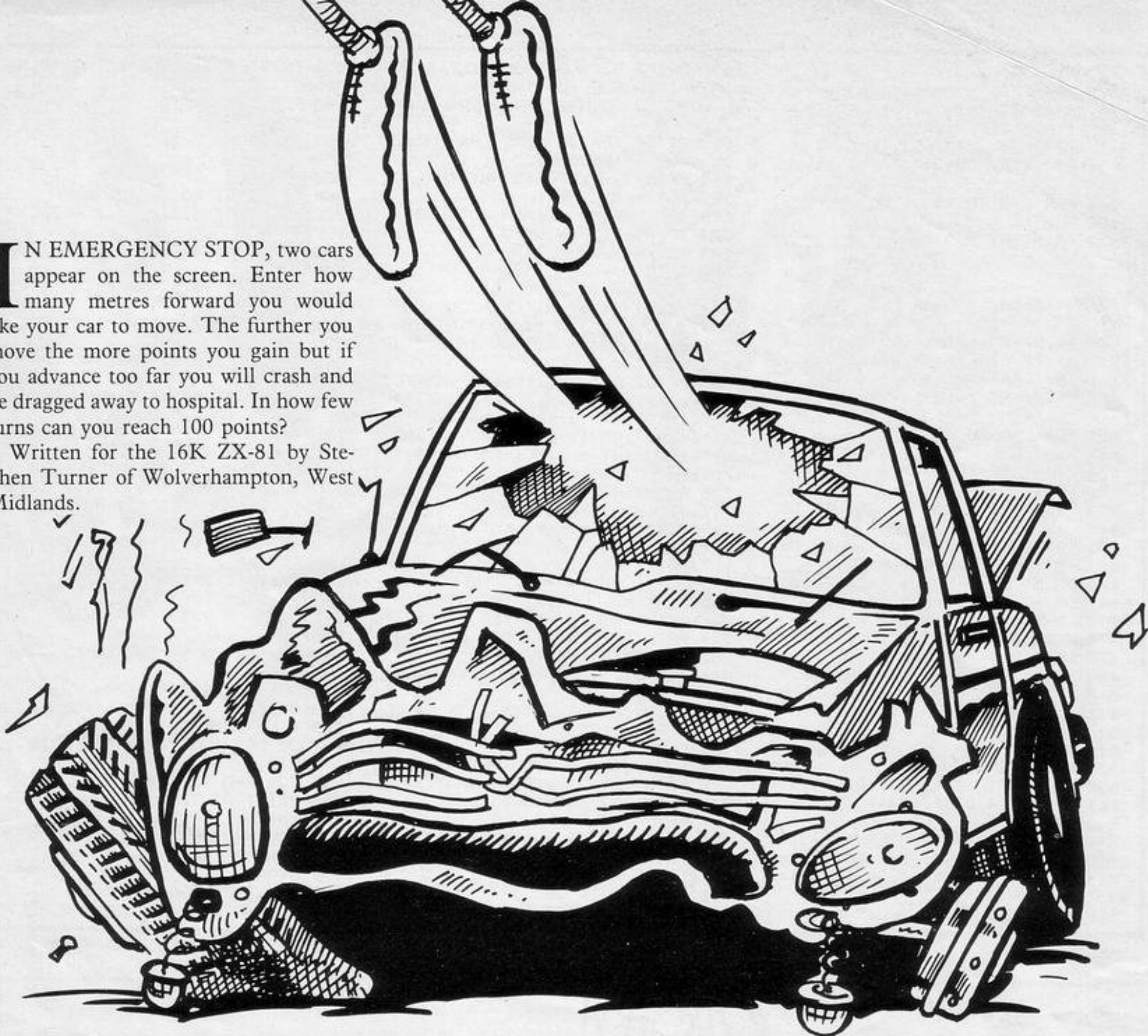






**I**N EMERGENCY STOP, two cars appear on the screen. Enter how many metres forward you would like your car to move. The further you move the more points you gain but if you advance too far you will crash and be dragged away to hospital. In how few turns can you reach 100 points?

Written for the 16K ZX-81 by Stephen Turner of Wolverhampton, West Midlands.



# EMERGENCY STOP

```

1 GOTO 700
2 LET N=0
4 LET G=INT (RND*50)+1
5 LET A$="(SP:3*96)"
6 LET B$="(SP:95)0"
7 LET C$="(SP:5*isp)"
8 LET D$=" 0 0"
9 CLS
10 FOR A=0 TO 0
20 LET B=INT (RND*10)+10
25 PRINT AT 11,A;A$;AT 12,A;B$
;AT 13,A;C$;AT 14,A;D$
50 PRINT AT 11,B;"(2*SP:3*96)"
;AT 12,B;"(4*SP:98)";AT 13,B;"(5
*isp)";AT 14,B;"0 0"
55 FOR I=15 TO 21
56 PRINT "(32*9a)"
57 NEXT I
60 PRINT AT 0,0;"HOW FAR UNTIL
HE HAS TO BRAKE?"
65 PRINT "MAX=20"

```

```

70 INPUT H
75 IF H>20 THEN GOTO 70
80 PRINT H;" METRE(S)"
85 FOR X=1 TO 50
86 NEXT X
90 PRINT AT 0,0;"

100 LET A=A+1
105 IF A=H THEN GOTO 200
110 PRINT AT 11,A;A$;AT 12,A;B$
;AT 13,A;C$;AT 14,A;D$
115 PRINT AT 11,B;"(2*SP:3*96)"
;AT 12,B;"(4*SP:98)";AT 13,B;"(5
*isp)";AT 14,B;"0 0"
120 GOTO 100
210 IF A=B-14 THEN GOTO 290
220 IF A>B-5 THEN GOTO 400
290 LET N=N+A
295 IF N>100 THEN GOTO 1000

```

```

300 PRINT AT 0,0;"WELL DONE YOU
DID NOT BUMP THAT","ONE.."
305 PRINT "AND YOU GET ";N;" PO
INTS."
310 PRINT "PRESS ANY KEY TO PLA
Y AGAIN"
320 IF INKEY$="" THEN GOTO 320
330 CLS
340 GOTO 4
400 PRINT AT 11,0;"

410 FOR Z=1 TO A
411 NEXT Z
420 PRINT AT 11,A;"(91:96:94:95
:96:92)";AT 12,A;"(SP:isp:2*9h:i
SP)";AT 13,A;"(SP:isp:2*1*isp)"
;AT 14,A;"(94:97:9r:94:97:93)"
421 FOR O=1 TO 50

```



```

422 NEXT U
430 PRINT AT 9,A;"(91'96'isp'96
'99'96'92)";AT 10,A;"(sp'5*isp)"
;AT 11,A;"(isp'3*9h'isp)";AT 12,
A;"(isp'3*9f'isp)";AT 13,A;"(5*isp)"
;AT 14,A;"(94'97'9r'9e'isp'9
3)"
440 FOR G=0 TO 49
450 NEXT G
455 PRINT AT 9,A;"
"
460 PRINT AT 12,A;"(95'2*isp'2*
92)";AT 12,A;"(sp'94'2*isp'93)";
AT 14,A;"(94'3*9f'93)"
466 PRINT AT 10,A-1;"(96'10'96)"
"
467 FOR L=0 TO 20
468 NEXT L
472 PRINT AT 10,A-1;" " ;AT 8,
A-3;"0(isp'99)"
473 PRINT AT 12,A;" " ;AT 12,
A;" "
474 PRINT AT 13,A;"(99'9w'96'95
'94)";AT 14,A-1;"(6*isp)"
475 PRINT AT 8,A-3;" " ;AT 12,
A-4;"0";AT 11,A-5;"(96'isp'99)";
AT 10,A-5;"(9r'isp'9e)"
476 FOR D=0 TO 5
477 NEXT D
480 PRINT AT 12,A-4;" " ;AT 11,A
-5;" " ;AT 10,A-5;" " ;AT 14,A
-5;"0(isp'99)"
500 FOR P=0 TO 50
510 NEXT P
520 FOR V=0 TO A-7
530 PRINT AT 12,V;" 0";AT 13,V;
" (i+)";AT 14,V;" (1w)"
540 NEXT V
545 FOR W=A-7 TO 0 STEP -1
550 PRINT AT 12,W;" 0 ";AT 13,W;
" (i+)0 ";AT 14,W;"(99'isp'isp'99
isp)"
560 NEXT W

```

```

600 PRINT AT 0,0;"YOU WILL BE I
N HOSPITAL FOR 10","WEEKS.AND WI
LL LOSE 20 POINTS","FOR EXPENCES
..."
605 PRINT "DRIVE MORE CAREFULLY
ON YOUR ","RELEASE."
610 PRINT ,,,,"PRESS ANY KEY TO
TRY AGAIN."
620 IF INKEY#="" THEN GOTO 620
621 IF NK=0 THEN GOTO 630
625 LET N=N-20
630 GOTO 5
700 FOR X=0 TO 23
710 PRINT AT 21,X;"(isp) 0 0"
;AT 20,X;"(isp'isp'5*isp)";AT 19,
X;"(isp'isp'95'0'98)";AT 18,X;"(isp'isp'3*96)"
720 PRINT AT 17,X;"(isp)";AT 16,
X;"(isp)";AT 15,X;"(isp)";AT 14,
X;"(isp)";AT 13,X;"(isp)";AT 12,
X;"(isp)";AT 11,X;"(isp)";AT 10,
X;"(isp)";AT 9,X;"(isp)";AT 8,X;
"(isp)"
725 PRINT AT 7,X;"(isp)";AT 6,X;
"(isp)";AT 5,X;"(isp)";AT 4,X;"
(isp)";AT 3,X;"(isp)";AT 2,X;"(isp)"
727 PRINT AT 21,0;"
"
730 NEXT X
731 PRINT AT 21,0;"(isp)"
740 PRINT AT 21,24;" 0 ";AT
20,24;"(4*isp'3*isp)";AT 19,24;"
(4*isp'95'0)";AT 18,24;"(4*isp'2*96
)"
750 PRINT AT 21,26;" " ;AT 2
0,26;" " ;AT 19,26;" " ;AT
18,26;" "
760 FOR V=30 TO 25 STEP -1
770 PRINT AT 21,V;"(99'isp)";AT
20,V;"(i'isp)";AT 19,V;" 0 "
780 NEXT V
790 FOR C=20 TO 3 STEP -1
800 PRINT AT 19,24;"(94)";AT 20,
24;"(97)"
810 FOR G=0 TO 10
820 NEXT G

```

```

830 PRINT AT 19,24;" " ;AT 20,24
;"(9e)"
840 FOR G=0 TO 10
850 NEXT G
855 PRINT AT 0,1;"
"
860 NEXT C
865 PRINT AT 20,1;"(22*97)"
870 PRINT AT 3,2;" *EMERGENCY
STOP*"
885 PRINT AT 5,2;"THE OBJECT OF
THE"
890 PRINT AT 6,2;"GAME IS TO ES
TIMATE"
891 PRINT AT 7,2;"THE DISTANCE
BETWEEN"
895 PRINT AT 8,2;"THE TWO CARS."
"
900 PRINT AT 9,2;"IF YOUR ESTIM
ATE IS";AT 10,2;"WRONG THE"
910 PRINT AT 11,2;"CONSEQUENCE
S WILL BE";AT 12,2;" fatal.."
915 PRINT AT 13,2;"THE CLOSER Y
OU GET";AT 14,2;"THE MORE POINTS
";AT 15,2;"YOU GET.TRY AND GET";
AT 16,2;"100 OR MORE"
920 PRINT AT 10,1;"PRESS ANY KE
Y TO CONT."
930 IF INKEY#="" THEN GOTO 930
940 GOTO 2
941 STOP
1000 CLS
1010 PRINT TAB 6;"EMERGENCY STOP
"
1020 PRINT TAB 6;"(14*9s)"
1030 PRINT AT 6,2;"WELL DONE YOU
GOT ";N;" POINTS","AND WOULD PA
SS YOUR DRIVING TESTFIRST TIME..
.."
1040 FOR A=0 TO 100
1045 PRINT AT 10,3;"Press any ke
y to cont..."
1050 IF INKEY#="" THEN GOTO 1050
1060 GOTO 2
8999 STOP
9000 SAVE "EMERGENCY STOP"
9100 RUN

```





# GENERAL DOOM

```

5 GOSUB 9000
10 LET S=D*(RU)
15 LET V=0*(INT (RND*15)+1)
17 IF V=0*(8) AND P=1 THEN GO
TO 15
20 PRINT AT 17,0;"I CAN SEE ";
V#
25 GOSUB 9900
30 PRINT AT 17,0;"I AM ";S#
35 GOSUB 9900
40 PRINT AT 17,0;"I AM CARRYIN
G.-"
45 FOR F=1 TO 3
50 PRINT C*(F)
55 NEXT F
60 GOSUB 9900
65 GOSUB 9900
70 PRINT AT 17,0;"WHAT NOW"
75 INPUT A#
78 GOSUB 9900
80 IF A#="T" THEN GOTO 1000
85 IF A#="D" THEN GOTO 2000
90 IF A#="Q" THEN GOTO 3000
95 IF A#="P" THEN GOTO 4000
100 IF A#="S" THEN GOTO 5000
105 IF A#="H" THEN GOTO 6000
110 IF A#="R" THEN GOTO 7000
115 IF A#="M" THEN GOTO 8000
120 GOTO 70
1000 REM TAKE
1005 IF V=0*(2) OR V=0*(5) OR
V=0*(7) OR V=0*(10) THEN GOTO
20
1010 IF C*(1,1 TO 7)<>N# AND C*(
2,1 TO 7)<>N# AND C*(3,1 TO 7)<>
N# THEN GOTO 20
1015 IF C*(1,1 TO 7)=N# THEN GOT
O 1030
1020 IF C*(2,1 TO 7)=N# THEN GOT
O 1040
1025 IF C*(3,1 TO 7)=N# THEN GOT
O 1050
1030 LET C*(1)=V#
1035 GOTO 1070
1040 LET C*(2)=V#
1045 GOTO 1070
1050 LET C*(3)=V#
1070 PRINT AT 17,0;"O.K."
1072 IF V=0*(3) THEN LET S=S+5
1073 IF V=0*(8) THEN LET S=S+50
1074 IF V=0*(8) THEN LET P=1
1075 GOSUB 9900
1077 LET V=N#
1080 GOTO 20
2000 REM DROP
2005 PRINT AT 17,0;"DROP WHAT(1,
2,3)"
2010 INPUT DR
2015 IF DR<1 OR DR>3 THEN GOTO 2
010
2017 IF C*(DR)=0*(3) THEN LET S=
S-5
2020 LET C*(DR)=N#
2025 GOSUB 9900
2030 GOTO 20
3000 REM QUIT
3005 FAST
3010 CLS
3015 SLOW
3020 STOP

```

```

3025 GOTO 10
4000 REM PRESS
4005 IF RO<>2 THEN GOTO 20
4010 GOSUB 9900
4015 PRINT AT 17,0;"-----b1
ast off-----"
4020 FOR F=1 TO 6
4025 GOSUB 9900
4030 NEXT F
4035 LET S=S+50
4037 IF P=0 THEN LET S=S-30
4040 IF P=0 THEN GOTO 8700
4050 IF P=1 THEN GOTO 8500
5000 REM SHOOT
5005 IF V<>0*(2) AND V<>0*(5)
AND V<>0*(7) THEN GOTO 20
5010 IF C*(1)<>0*(1) AND C*(2)<>
0*(1) AND C*(3)<>0*(1) THEN GOTO
20
5015 IF C*(1)<>0*(9) AND C*(2)<>
0*(9) AND C*(3)<>0*(9) THEN GOTO
20
5020 IF INT (RND*3)=1 THEN GOTO
5300
5025 PRINT AT 17,0;"ZZZZZAP YOU
VAPORIZED HIM"
5030 LET V=N#
5032 LET S=S+10
5033 GOSUB 9900
5035 GOTO 20
5300 PRINT AT 17,0;"I HAVE BEEN
SHOT..CROAK..GROAN...."
5305 FOR F=1 TO 6
5310 GOSUB 9900
5315 NEXT F
5320 GOTO 8700
6000 REM HIT
6005 IF INT (RND*3)=1 THEN GOTO
6500
6010 PRINT AT 17,0;"YOU SMASHED
HIM"
6015 GOSUB 9900
6020 FOR F=1 TO 3
6025 IF C*(F)=0*(1) THEN PRINT A
T 17,0;"HE DENTED YOUR BLASTER"
6030 IF C*(F)=0*(6) THEN PRINT A
T 17,0;"HE HEAD BUTTED YOUR SIGN
"
6035 IF C*(F)=0*(9) THEN PRINT A
T 17,0;"HIS HEAD CRUNCHED YOUR A
MMO"
6040 SCROLL
6045 NEXT F
6050 GOSUB 9900
6052 LET S=S+10
6053 LET V=N#
6055 GOTO 20
6500 PRINT AT 17,0;"HE HURT ME,T
HE BULLY"
6505 FOR F=1 TO 6
6510 GOSUB 9900
6515 NEXT F
6520 GOTO 8900
7000 REM RUN
7001 IF V<>0*(2) AND V<>0*(5)
AND V<>0*(8) THEN GOTO 20
7005 IF INT (RND*3)=1 THEN GOTO
7500
7010 PRINT AT 17,0;"I OUT RAN HI
M"

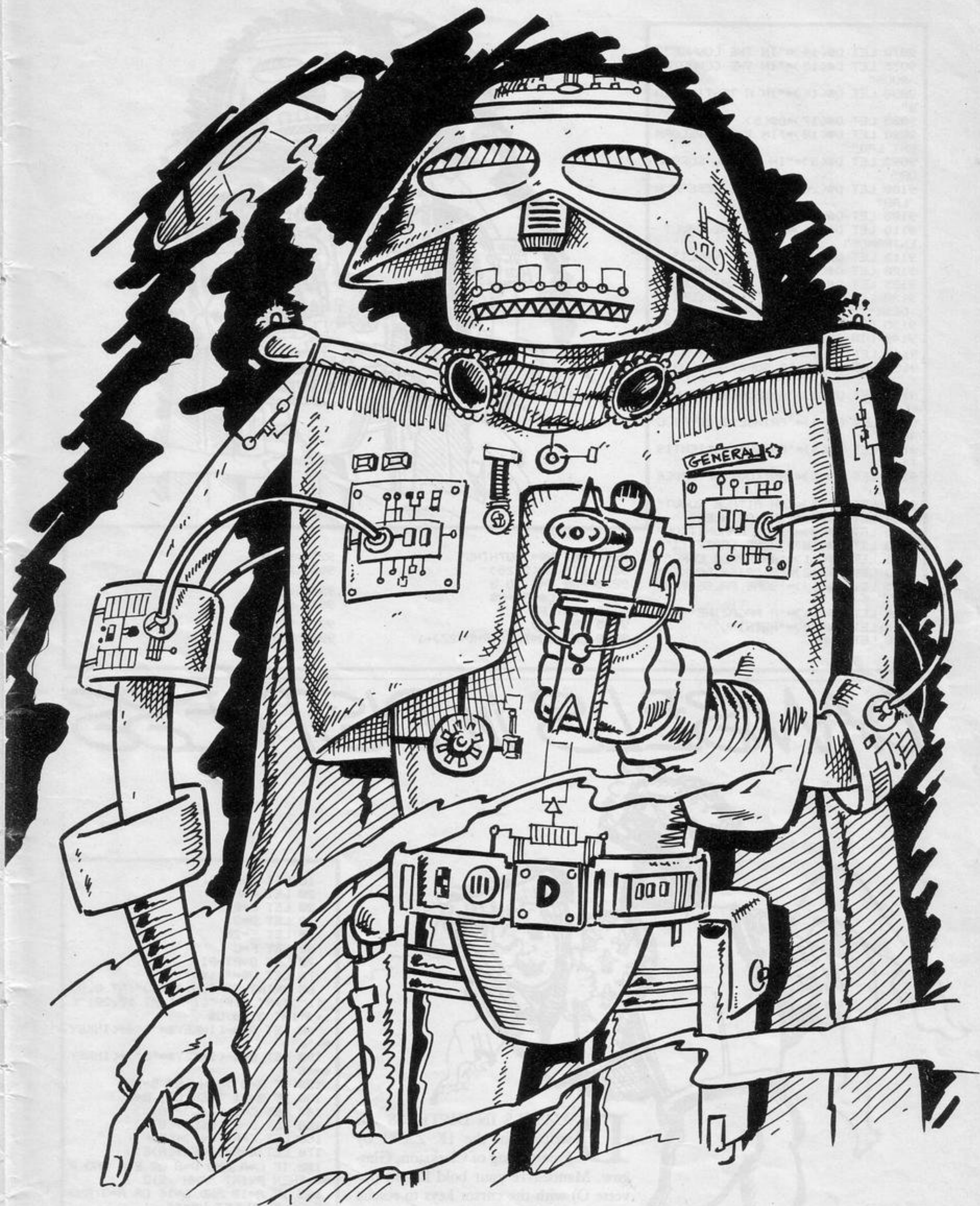
```

```

7015 GOSUB 9900
7020 LET RO=RO+2
7025 IF RO>27 THEN LET RO=1
7030 GOTO 10
7500 PRINT AT 17,0;"HE HAS CAUGH
T ME"
7505 GOSUB 9900
7510 PRINT AT 17,0;"I WILL HIT H
IM"
7515 GOSUB 9900
7520 GOTO 6000
8000 REM MOVE
8005 PRINT AT 17,0;"F/B/S"
8010 INPUT Z#
8015 IF Z#="F" THEN LET RO=RO+1
8020 IF Z#="B" THEN LET RO=RO-1
8025 IF RO<1 OR RO>27 OR Z#="S"
THEN LET RO=INT (RND*27)+1
8027 LET S=S+1
8028 GOSUB 9900
8030 GOTO 10
8500 REM WIN
8501 PRINT AT 0,0;
8505 PRINT "WE HAVE SAVED THE PR
INCESS AND ";AT 5,0;"WE ARE NOW
HEROS"
8510 PRINT AT 15,0;"SCORE=";S
8515 PAUSE 9000
8520 GOTO 3000
8700 REM NO PRINCESS
8701 PRINT AT 0,0;
8705 PRINT "WE WILL BE HATED BY
EVERYONE ";AT 5,0;"BECAUSE WE FO
RGOT THE PRINCESS"
8710 GOTO 8510
8900 REM FAIL
8901 PRINT AT 0,0;
8905 PRINT "WE HAVE FAILED OUR M
ISSION"
8910 GOTO 8510
8999 STOP
9000 FAST
9002 DIM D*(27,60)
9005 LET D*(1)="IN THE STORAGE C
OMPARTMENT THERES AN ELEVATOR HE
RE"
9010 LET D*(2)="IN MY SPACE SHIP
,A RED BUTTON SAYS<<BLAST OF
F>>"
9015 LET D*(3)="NEXT TO MY SPAC
E SHIP"
9020 LET D*(4)="ON THE FLIGHT DE
CK OF GENERAL DOOMS BATTLE
CRUISER"
9025 LET D*(5)="IN A HALLWAY"
9030 LET D*(6)="IN THE SUPPLY DE
POT"
9035 LET D*(7)=0*(5)
9040 LET D*(8)="IN THE STRATEGY
PLANNING ROOM"
9045 LET D*(9)="IN THE DECONTAM
INATION CENTRE"
9050 LET D*(10)="IN THE TRACTOR
BEAM CONTROL ROOM"
9055 LET D*(11)="IN THE WOMENS T
OILETS"
9060 LET D*(12)="IN THE WOMENS B
ATHROOM"
9065 LET D*(13)="IN THE INTERROG
ATION ROOM"

```





**W**ICKED GENERAL DOOM has captured Princess Leya. Your mission is to find her and take her to safety in your spaceship. Commands to use are T(take), D(drop),

Q(quit), P(press), S(shoot), H(hit), R(run), M(move). Once you have entered M you will be asked F/B/S? (forward, backward, sideways).

You can shoot only when you have a

blaster and some ammunition. You can carry only three things at a time, including the princess.

Written for the 16K ZX-81 by Jonathan Huffer of Walsall, West Midlands.



```

9070 LET D$(14)="IN THE LOUNGE"
9075 LET D$(15)="IN THE COMPUTER
ROOM"
9080 LET D$(16)="IN A TESTING LA
B"
9085 LET D$(17)=D$(5)
9090 LET D$(18)="IN THE DEVELOPM
ENT LAB"
9095 LET D$(9)="IN A LONG CORRID
OR"
9100 LET D$(20)="IN THE RESEARCH
LAB"
9105 LET D$(23)="LUST"
9110 LET D$(21)="NEAR THE VAULT
ENTRANCE"
9115 LET D$(22)="IN THE VAULT"
9120 LET D$(24)="IN THE JAIL"
9125 LET D$(25)="IN A JAIL CELL"
9130 LET D$(26)="AT THE SECURITY
DESK"
9135 LET D$(27)="IN AN ELEVATOR"
9140 DIM U$(15,25)
9145 LET U$(1)="A BLASTER"
9150 LET U$(2)="A SUPRISED GUARD"
"
9155 LET U$(3)="A SHINESTONE NEC
KLACE"
9160 LET U$(4)="PRINCESS LEYAS C
APE"
9165 LET U$(5)="AN EVIL SCIENTIS
T"
9170 LET U$(6)="ANK<OUT OF ORDER
>>SIGN"
9175 LET U$(7)="AN ATTACK ROBOT"
9180 LET U$(8)="THE PRINCESS"
9185 LET U$(9)="SOME AMMUNITION"
9190 LET U$(10)="SOME GRAFFITI"
9195 LET U$(11)="AN APPLE CORE"
9200 LET U$(12)="A CRISP PACKET"
9205 LET U$(13)="SOME FALSE TEET
H"
9210 LET U$(14)="A MAGAZINE"
9215 LET U$(15)="NOTHING"
9220 LET S=0

```



```

9222 LET N$="NOTHING"
9225 DIM C$(3,25)
9230 FOR F=1 TO 3
9235 LET C$(F)=N$
9240 NEXT F
9245 LET P=0
9250 LET RO=INT (RND*27)+1

```

```

9255 SLOW
9500 RETURN
9900 SCROLL
9910 SCROLL
9915 SCROLL
9999 RETURN

```

# DAMSELS in DISTRESS



**D**AMSELS IN DISTRESS was written for the 1K ZX-81 by Stuart Lang of Clarkston, Glasgow. Manoeuvre your bold knight (inverse O) with the cursor keys to rescue the damsel (inverse asterisk) and take her to the castle (inverse +). To make it easier you can run off one side of the screen and you will re-appear on the other. You must avoid the dragons (inverse ") which guard her.

```

10 LET A=PI/PI
20 LET B=A
30 LET C=B
40 LET D=31
50 LET E=20
60 LET F=C
70 LET S=PI-PI
75 LET U$="(1*)"
80 PRINT AT A,B;"(10)";AT C,D;"
(1)";AT E,F;"(1)";AT 17,28;"(
1+)";AT 3,28;U$
90 LET A=A-(INKEY$="7")+<INKEY
$="6">
100 LET B=B-(INKEY$="5")+<INKEY
$="8">
120 IF B=0 THEN LET B=30
130 IF B=31 THEN LET B=0
140 LET C=C-(A<C)+(A>C)
150 LET D=D-(B<D)+(B>D)
160 LET F=F-(B<F)+(B>F)
170 LET E=E-(A<E)+(A>E)
180 IF C=A AND D=B OR E=A AND F
=B THEN PRINT "AHH";S;Z
185 IF A=10 AND B=16 OR A=3 AND
B=28 THEN LET U$=""
190 IF A=17 AND B=28 AND U$=""
THEN GOTO 350
200 CLS
300 GOTO 80
350 LET S=S+1
360 GOTO 75

```



**D**O YOU WANT to know if you can see the future?

Andrew Macgregor of Rainhill, Merseyside, sent **ESP**, an irresistible routine for testing your pre-cognitive abilities. Five abstract symbols are displayed and you are invited to decide which will be selected.

You have 25 attempts and could expect, on a strictly statistical basis, a success rate of 20 percent, that is five. Any variation from that figure is significant.

Everyone in the office seems strictly first-sighted but we feel sure that some of our readers will prove to be paranormal. (16K Spectrum).



```

8 INVERSE 1: INK 4: PRINT AT
1,0;" THE E.S.P TEST WAS INVENTE
D BY PROF. J.B.RHINE IN 1934": I
NK 0: INVERSE 0
10 LET z=0
20 FOR t=1 TO 25
30 LET rp=INT (6*AND): IF rp=0
THEN GO TO 30
32 PRINT AT 6,6;CHR$ 144;AT 6,
10;CHR$ 145;AT 6,14;CHR$ 146;AT
6,18;CHR$ 147;AT 6,22;CHR$ 148
34 PRINT AT 7,6;"1";AT 7,10;"2
";AT 7,14;"3";AT 7,18;"4";AT 7,2
2;"5"
35 BEEP .2,14: BEEP .4,11
40 INPUT "Guess which symbol:E
nter its No. ";a
50 IF a<0 OR a>5 THEN GO TO 40
60 PRINT AT 10,10;CHR$ (143+a)
: PRINT AT 12,10;"YOU"
70 PRINT AT 10,25;CHR$ (143+rp
): PRINT AT 12,24;"COMPUTER"
80 IF a=rp THEN LET z=z+1: FOR
n=1 TO 25: BEEP .1,a+n: NEXT n:
INVERSE 1: PRINT AT 13,6;"CORR
ECT=";z: INVERSE 0
81 IF a<>rp THEN BEEP .3,(-5-a
)

```

```

86 PRINT AT 20,10;"GUESSES LEF
T=";25-t;" " : PAUSE 25: NEXT
t
90 LET p=z/25*100: PRINT AT 12
,5;"Your score is ";p;"% .Normal
is 20%"
100 IF p>20 THEN PRINT AT 17,5;
"Your ESP ability is ";(p-20);"
% above normal"
105 IF t<=0 THEN STOP
110 FOR n=144 TO 148
120 FOR f=0 TO 7
125 READ x
130 POKE USR CHR$ (n)+f,x
140 NEXT f
150 NEXT n
160 DATA 24,36,66,129,129,66,36
,24
170 DATA 82,137,82,137,82,137,8
2,137
180 DATA 24,24,24,255,255,24,24
,24
190 DATA 153,90,60,255,60,90,15
3,0
200 DATA 255,129,129,129,129,12
9,129,255
210 STOP

```



# INVADERS

**L**ESLIE ROBINSON and Trevor Leeming of Rotherham, South Yorkshire have speeded this short space invaders program by writing part of it in machine code. The object is to kill as many space invaders as possible before you run out of fuel or your laser over-heats.

To enter the program first enter the short program lines 1 to 80. RUNning that should produce two quotation marks at the bottom of the screen. Next, the three columns of numbers should be entered. Enter each two digits separately and work horizontally across the columns. Thus you would begin by typing 2A ENTER and proceed to type 0E ENTER.

Once all that data has been typed-in, RUN the program again to place all the machine code in line 1. Lines 10 to 80 should then be deleted. The remaining line 1 containing the machine code should then become line 1 of the main program (16K ZX-81).

2A	0E	40
06	11	36
05	0E	21
2B	0D	20
FC	5E	1C
1D	20	22
36	05	0E
21	23	0D
20	FC	36
00	0E	21
2B	0D	20
FC	0E	FE
0D	20	FD
0E	FE	0D
20	FD	10
D7	36	00
01	00	00
C9	2B	2B
2B	0E	05
23	36	00
0D	20	FA
0E	1F	23
0D	20	FC
36	00	01
0C	08	C9

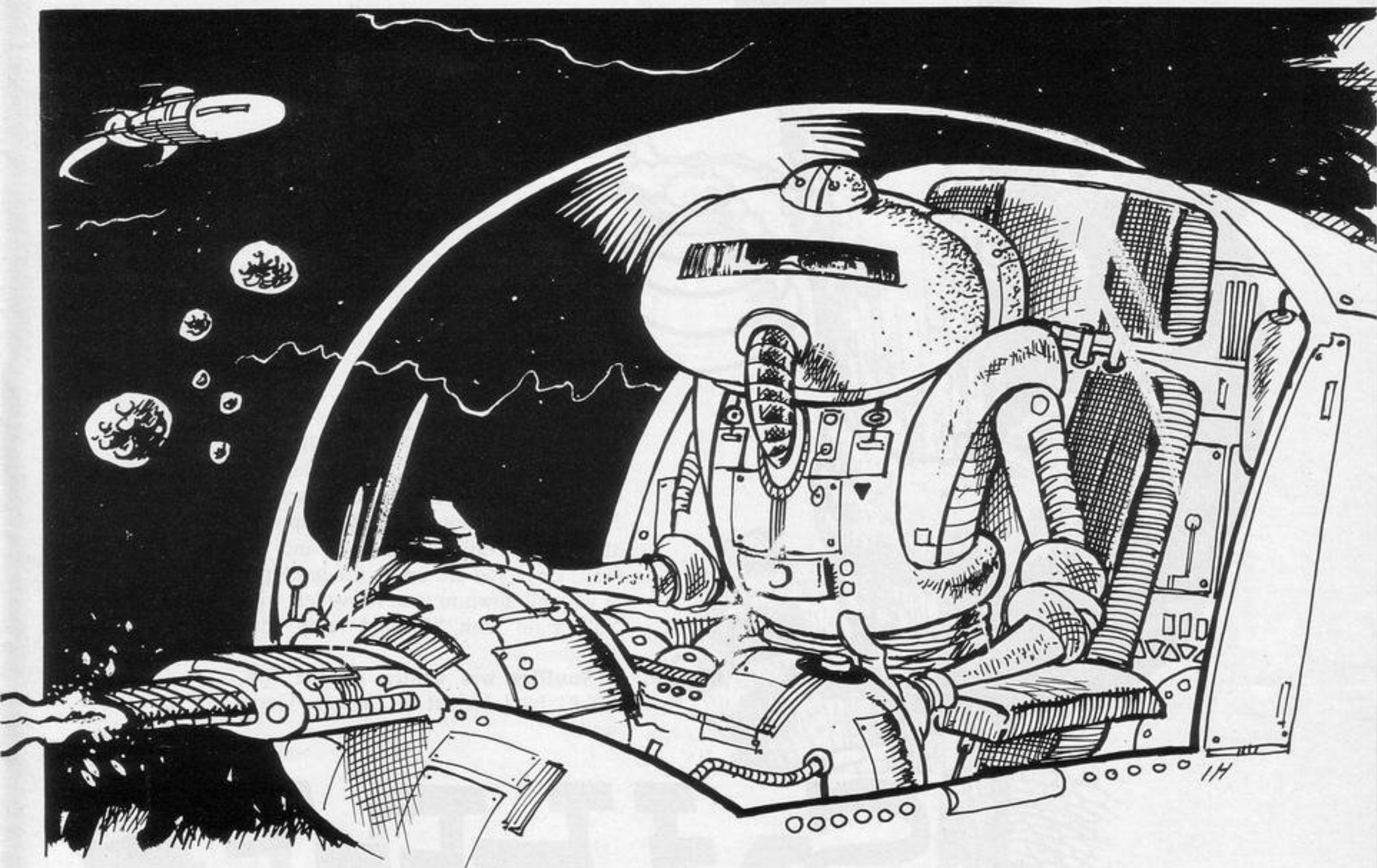
```
~ 1 REM ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ  
ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ  
ZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZZ  
10 LET A$=""  
20 FOR X=16514 TO 16588  
30 IF A$="" THEN INPUT A$  
40 POKE X,16*CODE A$+CODE A$(2  
)-476  
50 SCROLL  
60 PRINT X," ";A$( TO 2)  
70 LET A$=A$(3 TO )  
80 NEXT X
```

```

2 GOTO 2000
3 LET HS=0
6 LET XX=0
7 LET H$="???????"
10 LET Q=0
11 LET SCORE=0
20 LET A=10
30 LET L=0
31 LET B=INT (RND*28)
32 PRINT AT 21,0;"HIGH SCORE="
;HS;" BY ";H$
35 PRINT AT 4,B;"(sp:i*:sp)"
40 LET A=A+(INKEY$="8" AND A<2
9)-(INKEY$="5" AND A>2)
50~PRINT AT 19,A-2;"(sp:93:9w:
sp)";AT 18,A;
60 IF INKEY$="0" THEN LET L=US
R 16514
61 IF INKEY$="0" THEN LET XX=X
X+1
65 IF XX=50 THEN GOSUB 600
70 IF L<>0 THEN LET SCORE=SCOR
E+1
71 IF L=0 THEN LET Q=Q+1
75 IF Q>500 THEN GOTO 1000
76 IF Q>400 THEN GOSUB 500
77 IF RND>.95 THEN GOSUB 700
80 GOTO 30

```





```

500 PRINT AT 0,0;"FUEL LOW";AT
0,0;"fuel low"
501 RETURN
600 FOR F=1 TO 100
605 PRINT AT 0,15;"LAZER OVERHE
ATED ";AT 0,15;)"lazer overheate
d"
606 LET Q=Q+.2
620 NEXT F
630 PRINT AT 0,15;"LAZER OPERAT
IONAL "
635 LET XX=0
640 RETURN
700 PRINT AT 4,0;"
701 FOR Z=26 TO 0 STEP -2
704 PRINT AT 2,Z;"(99;i$;9w:sp:
sp)"
705 LET A=A+(INKEY$="8" AND A<2
9)-(INKEY$="5" AND A>2)
706 PRINT AT 19,A-2;"(sp;93;9w:
sp)";AT 18,A;
707 IF INKEY$="0" THEN LET L=US
R 16514
710 IF L<>0 THEN LET SCORE=SCOR
E+15
711 IF L<>0 THEN PRINT AT 2,Z)"
712 IF L<>0 THEN RETURN

```

```

720 NEXT Z
721 PRINT AT 2,0;" "
722 RETURN
1000 PRINT AT 0,0;"YOUR TIME IS
UP YOU KILLED ";SCORE;" ALIENS
"
1010 IF SCORE>HS THEN PRINT "YOU
HAVE ATTAINED THE HIGH SCORE"
1015 IF SCORE>HS THEN PRINT "PLE
ASE TYPE IN YOUR NAME FOR OTH
ERS TO LOOK AT AND WONDER"
1016 IF SCORE>HS THEN INPUT H$
1020 IF SCORE>HS THEN LET HS=SCO
RE
1025 FOR F=0 TO 100
1026 NEXT F
1028 CLS
1030 GOTO 10
2000 PRINT "SPACE INVADERS
KILL AS MANY AS YOU
CAN BEFORE YOUR FUEL RUNS OUT
USE TO MOVE
5 LEFT
8 RIGHT
0 TO FIRE LAZER"
7004 PAUSE 2000
7005 CLS
7006 GOTO 3

```



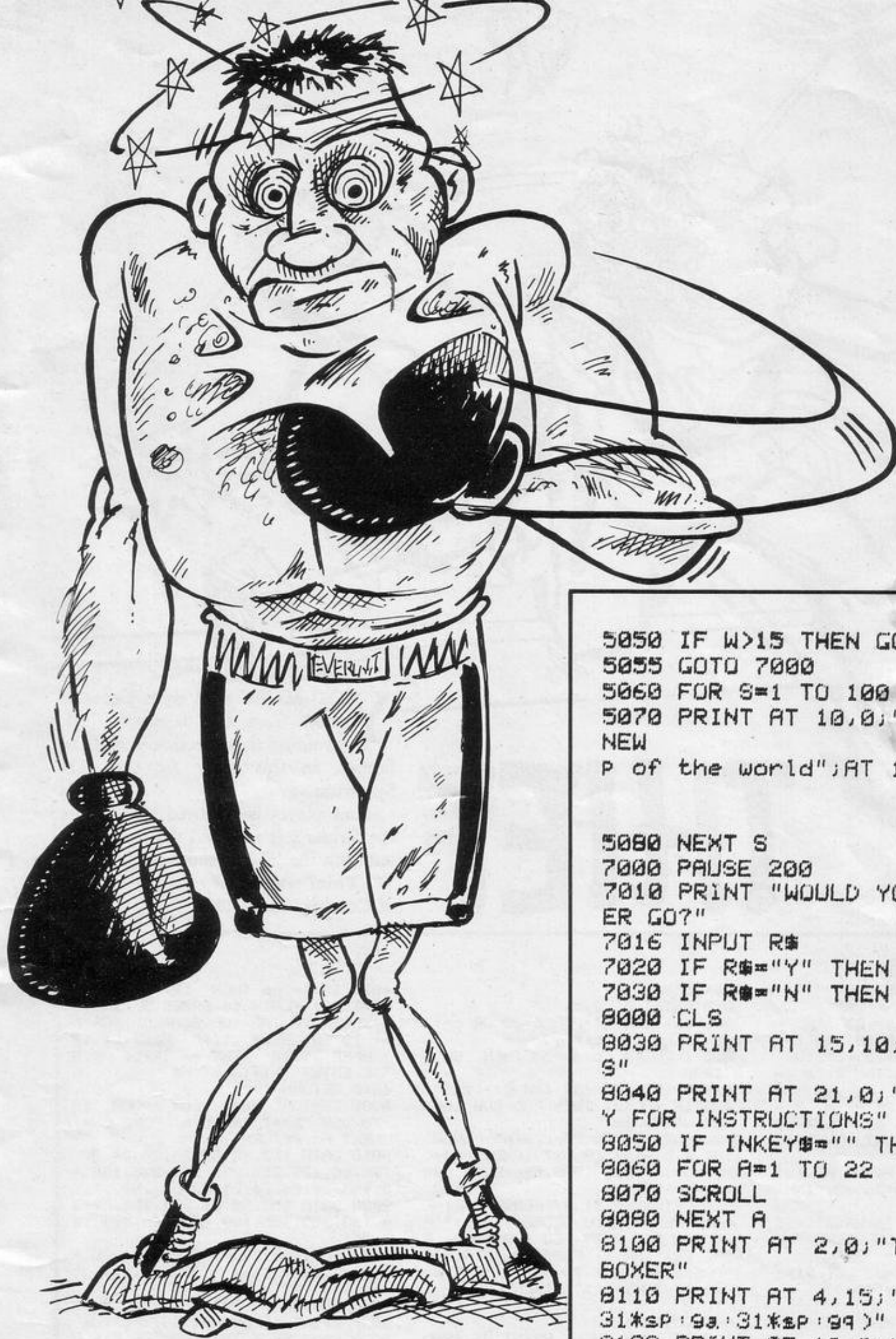
# BOXING

```

1 REM "BOXING"
2 GOTO 8000
3 LET G=22
4 GOSUB 3000
5 LET G=22
6 LET W=0
10 FOR A=5 TO 25
12 LET G=22
20 PRINT AT 15,A;"(9s)"
30 NEXT A
40 FOR B=13 TO 15
45 PRINT AT B,5;"(9s)" AT B,25
;"(isp)"
50 NEXT B
60 LET F=7
70 PRINT AT 14,F;"(9w)" AT 1
3,F;"(99)" AT 12,F;"(isp)" AT
T 11,F;"0"
80 LET V=INT (RND*3)
82 IF V=1 THEN LET F=F+1
85 IF V=0 THEN LET F=F-1
86 IF V=2 THEN GOSUB 1500
87 IF F<7 THEN LET F=7
88 IF F>23 THEN LET F=23
210 PRINT AT 14,G;"(99)" AT 1
3,G;"(9s)" AT 12,G;"(isp)" AT
T 11,G;"0"
220 IF INKEY$="8" THEN LET G=G+
1
225 IF INKEY$="5" THEN LET G=G-
1
230 IF INKEY$="0" THEN GOSUB 20
00
231 IF G-2=F AND INKEY$="0" THE
N GOSUB 4000
232 IF F+2=G AND V=2 THEN GOSUB
4500
235 IF G>=22 THEN LET G=22
236 IF G<=6 THEN LET G=6
240 GOTO 70
1500 PRINT AT 12,F+2;"(97)0" AT
12,F+2;"(97)0" AT 12,F+2;" "
1550 RETURN
2000 PRINT AT 12,G-1;"0(97)" AT
12,G-1;"0(97)" AT 12,G-1;" "
2010 RETURN
3000 CLS
3010 PRINT "WHAT IS YOUR NAME?"
3020 INPUT N$
3025 CLS
3040 LET H=INT (RND*4)
3045 IF H=0 THEN LET A$="CLUBBER
LANG"
3050 IF H=1 THEN LET A$="ROCKY"
3055 IF H=2 THEN LET A$="APOLLO"
3600 IF H=3 THEN LET A$="MUHAMID
ALI"
3700 PRINT AT 3,0;"IN THE BLACK
CORNER IS ";TAB 4;N$;AT 6,0;"AND
IN THE GREY CORNER IS ";TAB 4;A
$
3710 PAUSE 300
3720 CLS
3730 RETURN
4010 PRINT AT 1,0;"THE WINNER IS
";N$
4011 PRINT AT 11,F;" " AT 12,F;
"0 " AT 13,F;"(isp)" AT 14,F;"(9
9'99)"
4020 GOTO 4700
4510 PRINT AT 1,0;"THE WINNER IS
";A$
4511 PRINT AT 11,G;" " AT 12,G;
" " AT 13,G;" " AT 14,G;"(9w'
9s'96)0"
4512 PAUSE 200
4513 CLS
4515 GOTO 5000
4700 PAUSE 200
4720 LET W=W+1
4722 IF W=14 THEN PRINT AT 21,0;
"THIS ONES FOR THE CHAMPIONSHIP"
4723 PAUSE 50
4725 CLS
4730 GOTO 10
5000 IF W=0 THEN PRINT AT 10,0;"
YOU MAY AS WELL RETIRE"
5010 IF W>0 AND W<=3 THEN PRINT
"NOT BAD FOR A BEGINER"
5020 IF W>3 AND W<=6 THEN PRINT
"YOU MADE amature boxing champ"
5030 IF W>6 AND W<=10 THEN PRINT
"YOU ARE NOW A PROFFESIONEL"
5040 IF W>10 AND W<=15 THEN PRIN
T "YOU LOST IN THE WORLD
CHAMPIONSHIP"

```





**T**HE COMPUTER boxer stands at one side of the screen. It is controlled randomly, but fast-moving. Try to knock it out by moving backwards and forwards with keys 8 and 5 and throwing punches with key 0.

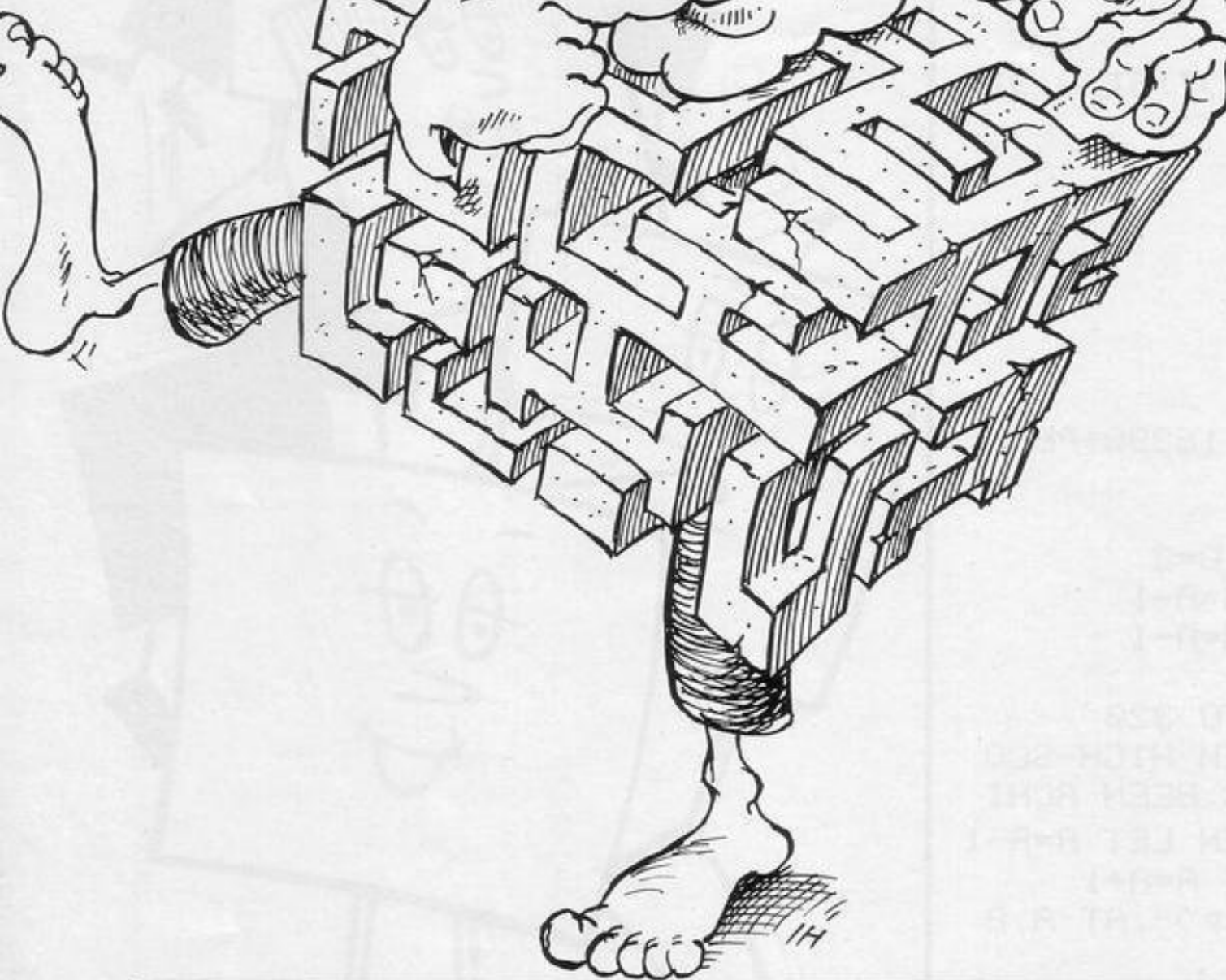
**Boxing** was written for the 16K ZX-81 by G Toplass of Stoke-on-Trent, Staffordshire.

```
5050 IF W>15 THEN GOTO 5060
5055 GOTO 7000
5060 FOR S=1 TO 100
5070 PRINT AT 10,0;"YOU ARE THE
NEW boxing cham
P of the world";AT 10,0;"
```

"

```
5080 NEXT S
7000 PAUSE 200
7010 PRINT "WOULD YOU LIKE ANOTH
ER GO?"
7015 INPUT R$
7020 IF R$="Y" THEN GOTO 1
7030 IF R$="N" THEN STOP
8000 CLS
8030 PRINT AT 15,10;"BY G.TOPLAS
S"
8040 PRINT AT 21,0;"PRESS ANY KE
Y FOR INSTRUCTIONS"
8050 IF INKEY$="" THEN GOTO 8050
8060 FOR A=1 TO 22
8070 SCROLL
8080 NEXT A
8100 PRINT AT 2,0;"THIS IS YOUR
BOXER"
8110 PRINT AT 4,15;"O(31*SP:1SP:
31*SP:9A:31*SP:9A)"
8120 PRINT AT 10,0;"YOU MOVE HIM
FOREWARD WITH 5 AND BACKWARD
S WITH 8. TO MAKE HIM
THROW A PUNCH PRESS 0"
8180 PRINT AT 21,0;"PRESS ANY KE
Y TO START FIGHTING"
8190 IF INKEY$="" THEN GOTO 8190
8195 FOR S=0 TO 22
8196 SCROLL
8197 NEXT S
8199 GOTO 3
```





OUR INITIAL reaction on playing **Labyrinth**, by Steven Vignaux of Bridgwater, Somerset was that it surpassed comparable professional software. Perhaps that is not surprising for Vignaux has had more access to computers than the majority of our readers.

His school owns five Spectrums and he was having lessons on them and practising on his ZX-81 at home until he upgraded to a Spectrum last Christmas. He is developing his programming skills and is learning machine code.

On **RUNning Labyrinth** you will find yourself inside the entrance of a large maze, from which it is your object to escape. Three-dimensional views of the maze to north, south, east and west can be obtained at the press of a button. When you are completely lost, press "H" and a plan of the maze will be displayed briefly, but that option is available only five times during your journey (16K Spectrum).

```
10 CLEAR : GO SUB 8000
20 RESTORE 9000: GO SUB 9000
30 PRINT AT 21,0: FLASH 1:
  PRESS ANY KEY
40 IF INKEY$="" THEN GO TO 40
50 BRIGHT 0
60 FOR n=9 TO 21: PRINT AT n,0
  : NEXT n
70 PRINT AT 10,1:"Press ~Y~ fo
  r the instructions"
80 IF INKEY$="" THEN GO TO 80
90 IF INKEY$="Y" OR INKEY$="y"
  THEN GO SUB 8200
100 LET b$="0": LET d=1: LET m=
  0
110 LET p=0: LET x=9: LET y=1
120 LET x1=x: LET y1=y
140 BORDER 7: PAPER 7: CLS : IN
  K 0
150 GO TO 500
220 IF a$="5" THEN LET b$=a$: L
  ET d=-1: BEEP .2,10: GO TO 500
230 IF a$="8" THEN LET b$=a$: L
  ET d=1: BEEP .2,10: GO TO 500
240 IF a$="6" THEN LET b$=a$: L
  ET d=1: BEEP .2,10: GO TO 500
250 IF a$="7" THEN LET b$=a$: L
  ET d=-1: BEEP .2,10: GO TO 500
260 LET a$=INKEY$: IF a$="" THE
  N GO TO 260
270 BEEP .2,0: IF a$="H" OR a$=
  "h" THEN LET p=p+1: IF p<=5 THEN
  BEEP .2,10: GO SUB 1000: GO TO
  500
280 IF a$="0" THEN GO TO 300
290 GO TO 220
300 IF b$="8" THEN LET y1=y1+1
310 IF b$="5" THEN LET y1=y1-1
320 IF b$="6" THEN LET x1=x1+1
330 IF b$="7" THEN LET x1=x1-1
400 BEEP .2,10: CLS
410 IF y1=0 AND x1<>15 THEN LET
  y1=1: PRINT AT 2,3:"You are try
  ing to leave by"AT 4,3:"going t
```

```
hrough the entrance":AT 6,11:"Tr
  y again": FOR n=0 TO 250: NEXT n
  : GO TO 500
420 IF x1=15 AND y1=1 THEN LET
  m=m+1: GO TO 3000
430 IF a(x1,y1)=1 THEN PRINT AT
  10,2:"You cannot go through wal
  ls."AT 12,12:"Try again": FOR n
  =0 TO 200: NEXT n: LET x1=x: LET
  y1=y: GO TO 500
440 LET m=m+1
500 CLS : PRINT AT 1,6:"You are
  looking ";d$(VAL b$)-4)
510 PLOT 0,0: DRAW 0,175: PLOT
  247,0: DRAW 0,175
520 IF b$="8" OR b$="5" THEN GO
  TO 800
530 LET x=x1: LET y=y1
540 LET d1=d: FOR i=1 TO 5
550 IF a(x+d,y)=1 THEN GO SUB (
  i*10)+2000: LET d=d1: GO TO 260
560 IF a(x+d,y-1)=1 THEN GO SUB
  (i*10)+2060: GO TO 580
570 GO SUB (i*10)+2210
580 IF a(x+d,y+1)=1 THEN GO SUB
  (i*10)+2110: GO TO 600
590 GO SUB (i*10)+2160
610 LET d=d+d1: NEXT i
620 LET d=d1: GO TO 260
800 LET x=x1: LET y=y1
810 LET d1=d: FOR i=1 TO 5
815 IF y+d=0 AND x<>15 THEN GO
  TO (i*10)+2490
817 IF y+d=0 OR y+d=32 THEN IF
  x=15 THEN GO TO (i*10)+2590
820 IF a(x,y+d)=1 THEN GO SUB (
  i*10)+2000: LET d=d1: GO TO 260
830 IF a(x-1,y+d)=1 THEN GO SUB
  (i*10)+2060: GO TO 850
840 GO SUB (i*10)+2210
850 IF a(x+1,y+d)=1 THEN GO SUB
  (i*10)+2110: GO TO 870
860 GO SUB (i*10)+2160
880 LET d=d+d1: NEXT i
```

```
890 LET d=d1: GO TO 260
1000 BORDER 7: PAPER 7: CLS : IN
  K 0
1010 PRINT AT 0,8:"PLAN OF MAZE
  No.":p
1020 FOR n=1 TO 20: FOR b=1 TO 3
  :
1030 IF a(n,b)=1 THEN PRINT AT n
  ,b:"■"
1040 NEXT b: NEXT n
1050 IF x=9 AND y=1 THEN PRINT A
  T 9,0:">"
1060 PRINT AT x,y: FLASH 1:"X"
1070 IF x<>9 OR y<>1 THEN PRINT
  AT 9,1:">"
1080 PRINT AT 15,1:"<"
1100 PRINT 11:" YOU ARE WHERE
  THE ~X~ IS."
1110 PRINT 10:" ENTRANCE = >
  EXIT = <"
1130 FOR n=0 TO 50
1140 BEEP .05,n: BEEP .05,50-n
1150 NEXT n
1160 CLS : RETURN
2010 DRAW -239,0: PLOT 0,0: DRAW
  239,0: RETURN
2020 PLOT 48,32: DRAW 159,0: PLO
  T 48,144: DRAW 159,0: RETURN
2030 PLOT 80,56: DRAW 95,0: PLOT
  80,120: DRAW 95,0: RETURN
2040 PLOT 104,72: DRAW 47,0: PLO
  T 104,104: DRAW 47,0: RETURN
2050 PLOT 120,80: DRAW 15,0: PLO
  T 120,96: DRAW 15,0: RETURN
2060 RETURN
2070 PLOT 0,0: DRAW 40,32: DRAW
  0,111: DRAW -40,32: RETURN
2080 PLOT 48,32: DRAW 32,24: DRA
  W 0,64: DRAW -32,24: RETURN
2090 PLOT 80,56: DRAW 24,16: DRA
  W 0,32: DRAW -24,16: RETURN
2100 PLOT 104,72: DRAW 16,8: DRA
  W 0,16: DRAW -16,8: RETURN
2110 PLOT 120,80: DRAW 8,8: DRAW
```



# BYRONICA

```

-8,8: RETURN
2120 PLOT 247,175: DRAW -40,-32:
DRAW 0,-111: DRAW 40,-32: RETUR
N
2130 PLOT 207,32: DRAW -32,24: D
RAW 0,64: DRAW 32,24: RETURN
2140 PLOT 175,56: DRAW -24,16: D
RAW 0,32: DRAW 24,16: RETURN
2150 PLOT 151,72: DRAW -16,8: DR
AW 0,16: DRAW 16,8: RETURN
2160 PLOT 135,80: DRAW -8,8: DRA
W 8,8: RETURN
2170 PLOT 247,32: DRAW -40,0: DR
AW 0,112: DRAW 40,0: RETURN
2180 PLOT 207,56: DRAW -32,0: DR
AW 0,64: DRAW 32,0: RETURN
2190 PLOT 175,72: DRAW -24,0: DR
AW 0,32: DRAW 24,0: RETURN
2200 PLOT 151,80: DRAW -16,0: DR
AW 0,16: DRAW 16,0: RETURN
2210 PLOT 127,88: DRAW 8,0: RETU
RN
2220 PLOT 8,32: DRAW 40,0: DRAW
0,112: DRAW -40,0: RETURN
2230 PLOT 48,56: DRAW 32,0: DRAW
0,64: DRAW -32,0: RETURN
2240 PLOT 80,72: DRAW 24,0: DRAW
0,32: DRAW -24,0: RETURN
2250 PLOT 104,80: DRAW 16,0: DRA
W 0,16: DRAW -16,0: RETURN
2260 PLOT 127,88: DRAW -7,0: RET
URN
2500 PLOT 8,160: DRAW 239,0: PLO
T 8,151: DRAW 239,0: PRINT AT 2,
8: "E N T R A N C E": LET d=d1: G
O TO 260
2510 PLOT 48,136: DRAW 159,0: PL
OT 48,127: DRAW 159,0: PRINT AT
5,12: "ENTRANCE": LET d=d1: GO TO
260
2550 LET d=d1: GO TO 260
2610 PLOT 48,136: DRAW 159,0: PL
OT 48,127: DRAW 159,0: PRINT AT
5,14: "EXIT": LET d=d1: GO TO 260
2700 GO TO 260
3000 BORDER 1: PAPER 1: CLS: IN
K 7: BRIGHT 1
3010 PRINT AT 21,0: FLASH 1: "(sp
:195:2*sp:196:93:196:95:2*93:197
:96:sp:94:92:194:93:96:91:97:93:
95:197:sp:195:93:194:92:195:sp:9
5:sp)": RANDOMIZE USR 3280
3020 PRINT AT 21,0: FLASH 1: "(sp
:195:2*sp:191:193:192:95:2*93:19
7:sp:96:92:sp:191:193:196:sp:95:
sp:95:91:197:195:sp:195:sp:194:9
3:97:sp)": RANDOMIZE USR 3280
3030 PRINT AT 21,0: FLASH 1: "(sp
:191:193:197:195:sp:2*95:2*193:9
2:sp:95:2*sp:195:sp:96:94:192:19
3:95:sp:91:195:sp:195:sp:195:sp:
95:sp)": RANDOMIZE USR 3280
3035 PRINT AT 21,0: FLASH 1: "
"
3040 FOR n=0 TO 16
3050 RANDOMIZE USR 3280
3060 NEXT n
3070 BRIGHT 1
3080 PRINT AT 8,3: "You managed t
o get out in"
3090 PRINT AT 9,3:m: " moves."
3100>IF p=0 THEN PRINT AT 11,0: "
You did not ask for help at all"
;
3110 IF p=1 THEN PRINT AT 11,3: "
You asked for help once."
3120 IF p=2 THEN PRINT AT 11,3: "
You asked for help twice."
3130 IF p>2 THEN PRINT AT 11,2: "
You asked for help ";p: " times"

```

```

3140 PRINT AT 15,0: "Would you li
ke to see the maze you have con
quered again?"
3150 PRINT AT 18,8: "Press ~Y~ if
YES"
3160 IF INKEY#="" THEN GO TO 316
0
3170 IF INKEY#="Y" OR INKEY#="y"
THEN GO SUB 4000
3180 FOR n=15 TO 18: PRINT AT n,
0,,, NEXT n
3190 PRINT AT 15,0: "Would you li
ke to play again?"
3200 PRINT AT 18,8: "Press ~Y~ if
YES"
3210 IF INKEY#="" THEN GO TO 321
0
3220 IF INKEY#="Y" OR INKEY#="y"
THEN GO TO 3240
3230 BRIGHT 0: BORDER 7: PAPER 7
: CLS: INK 0: STOP
3240 GO TO 10
4000 BRIGHT 0: BORDER 7: PAPER 7
: CLS: INK 0
4005 PRINT AT 0,10: "PLAN OF MAZE
"
4010 FOR n=1 TO 20
4020 FOR i=1 TO 31
4030 IF a(n,i)=1 THEN PRINT AT n
,i: "■"
4040 NEXT i: NEXT n
4050 PRINT 0: " PRESS ANY KE
Y TO RETURN "
4060 IF INKEY#="" THEN GO TO 406

```

```

0
4070 CLS: RETURN
8000 BORDER 1: PAPER 1: CLS: IN
K 7: BRIGHT 1
8005 PRINT AT 21,0: FLASH 1: "
":
RANDOMIZE USR 3280
8010 PRINT AT 21,0: FLASH 1: "(sp
:195:2*sp:196:93:96:95:2*93:197
:96:sp:94:92:194:93:96:91:97:93:9
5:197:sp:195:93:194:92:195:sp:95
:sp)": RANDOMIZE USR 3280
8020 PRINT AT 21,0: FLASH 1: "(sp
:195:2*sp:191:193:192:95:2*93:19
7:sp:96:92:sp:191:193:196:sp:95:
sp:95:91:197:195:sp:195:sp:194:9
3:97:sp)": RANDOMIZE USR 3280
8030 PRINT AT 21,0: FLASH 1: "(sp
:191:193:197:195:sp:2*95:2*193:9
2:sp:95:2*sp:195:sp:96:94:192:19
3:95:sp:91:195:sp:195:sp:195:sp:
95:sp)": RANDOMIZE USR 3280
8035 PRINT AT 21,0: FLASH 1: "
"
8040 FOR n=0 TO 16
8050 RANDOMIZE USR 3280
8060 NEXT n
8070 PRINT AT 9,8: "By Steven Vi9
naux"
8080 PRINT AT 12,2: "Please wait
while I work out"
8090 PRINT AT 14,12: "the maze"
8100 RETURN
8210 PRINT AT 10,1: "

```





```

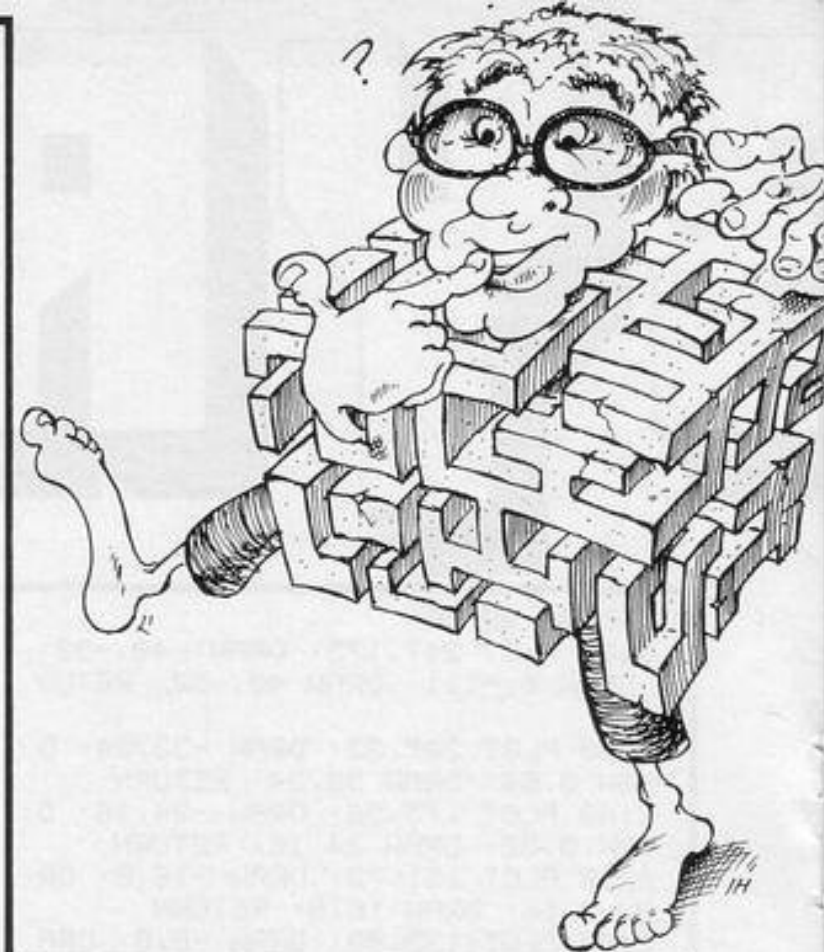
8220 PRINT AT 6,2:"The object of
the game is to","find your way
out of the maze."
8230 PRINT " If while trying to
find your way out of the maze
you find you are completely lost
then you can get some help by Pre
ssing ~H~. Once you have Presse
d the key the screen will clea
r and you will be shown a Plan
of the maze. This will indi
cate your Position in the maze
, the exit and the entrance. Ho
wever the Plan will only remai
n on view for a short Period o
f time."
8240 PRINT AT 21,0:" PRESS ANY
KEY TO CONTINUE "
8250 IF INKEY$="" THEN GO TO 825
0
8260 BEEP .2,0: BEEP .2,10
8270 FOR n=6 TO 21: PRINT AT n,0
,,, NEXT n
8275 PRINT AT 6,0:" Another thi
ng about the Plan of the maze i
s that you are only given access
to it five times."
8280 PRINT " Once the game star
ts you will be given a three dim
ensional representation of th
e maze as you would see it. Th
is view is governed by the dire
ction in which you are lookin
g. You can look either north,so
uth,east or west."
8290 PRINT " When you move you
move one Place forward in the
direction you are looking."
8300 PRINT AT 21,0:" PRESS ANY
KEY TO CONTINUE "
8310 IF INKEY$="" THEN GO TO 831
0
8320 BEEP .2,0: BEEP .2,10
8330 FOR n=6 TO 21: PRINT AT n,0
,,, NEXT n
8340 PRINT AT 6,0:"Keys for look
ing in different directions:"
8350 PRINT " WEST SOUTH N
ORTH EAST"
8360 PRINT " 5 6
7 9"

```

```

8370 PRINT "As indicated by the
arrows above the key."
8375 PRINT "Press ~0~ to move o
ne Place forward in the dire
ction you are looking."
8380 PRINT " Press ~H~ fo
r HELP"
8390 PRINT AT 21,0:" PRESS A
NY KEY TO PLAY"
8400 IF INKEY$="" THEN GO TO 840
0
8410 BEEP .2,0: BEEP .2,10
8420 BORDER 7: PAPER 7: CLS : IN
K 0
8430 RETURN
9000 DIM a(20,31): DIM d$(4,5)
9010 FOR n=1 TO 20
9020 READ b$
9030 FOR i=1 TO 31
9040 LET a(n,i)=VAL b$(i)
9070 NEXT i
9080 NEXT n: BEEP .2,0
9090 BEEP .2,10
9095 FOR n=1 TO 4: READ d$(n): N
EXT n: RETURN
9100 DATA "11111111111111111111
1111111111"
9110 DATA "101001000101000000000
0100100001"
9120 DATA "100011010101011101111
0010001101"
9130 DATA "101001011101010101000
1010100001"
9140 DATA "10111010001010001010
1010111111"
9150 DATA "100000000111011111010
1000100001"
9160 DATA "101010111000000000000
1010101101"
9170 DATA "101010100011010101010
1010000011"
9180 DATA "001010101010010101010
1010111001"
9190 DATA "101110000000110101011
1010101111"
9200 DATA "101010111110010100010
0010000001"
9210 DATA "111000101011100011011
1110101101"
9220 DATA "100011101010111100010
0000101001"
9230 DATA "111110000000101001111

```



```

1111101011"
9240 DATA "001011101011101010000
0001001001"
9250 DATA "101000001000001010111
0101111011"
9260 DATA "101011111101111110001
0100000001"
9270 DATA "100001000001000001111
0111011101"
9280 DATA "101010010100011100000
0001000001"
9290 DATA "111111111111111111111
1111111111"
9300 DATA "WEST","SOUTH","NORTH"
"EAST"

```

```

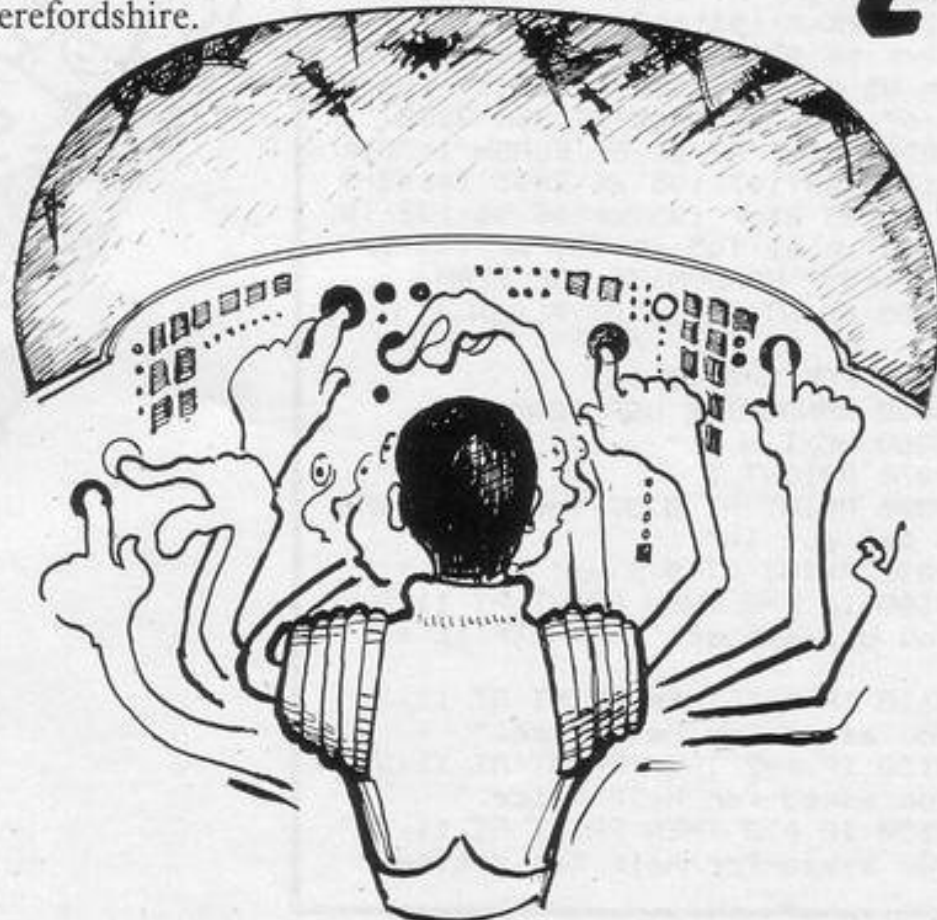
DDT 1 LET L=VAL "9"
2 LET S=SGN P1
3 CLS
10 FOR N=11 TO 20 STEP .03
20 IF RND>.5 THEN PRINT AT N,R
ND*15+2;"+"
30 LET L=L+(INKEY$="A" AND L<1
7)-(INKEY$="I" AND L>2)
40 PRINT AT 21,L-2:"(SP:93:ISP
:94:SP)"
50 IF INKEY$="0" THEN GOSUB 13
0
60 NEXT N
100 PRINT AT N,0:S
110 PAUSE VAL "4E4"
120 RUN
130 FOR A=CODE "=" TO CODE "(9d
)" STEP -CODE "(91)"
131 PRINT AT A,L:
132 IF PEEK (PEEK 16390+256*PEE
K 16399)=21 THEN GOTO 140
133 PRINT "(95)"
133~PRINT "(95)"
134 PRINT AT A,L:" "
136 NEXT A
137 GOTO VAL "100"
140 LET S=S+CODE "(91)"
141 PRINT " "
142 RETURN

```

**W**HEN THIS GAME is RUN you find yourself at the bot-  
tom of the screen with a  
horde of dark shapes above you in the  
air. Maddened by that intrusion on  
your airspace, you rush from side to  
side, using keys "I" and "A", shooting  
at the shapes with key 0. The game ends  
with your score if you shoot an empty  
space or if you run out of time.

**Space Craze** was written for the 1K  
ZX-81 by P Roberts of Leominster,  
Herefordshire.

**SPACE  
CRAZE**







**C**CLIMBER is a reaction game guaranteed to test the co-ordination of the most lightning-fingered operator. You must make your way through a series of parallel walls in which a magical gateway appears at random positions. You are represented on-screen by A and manoeuvre yourself with keys 1 and 0.

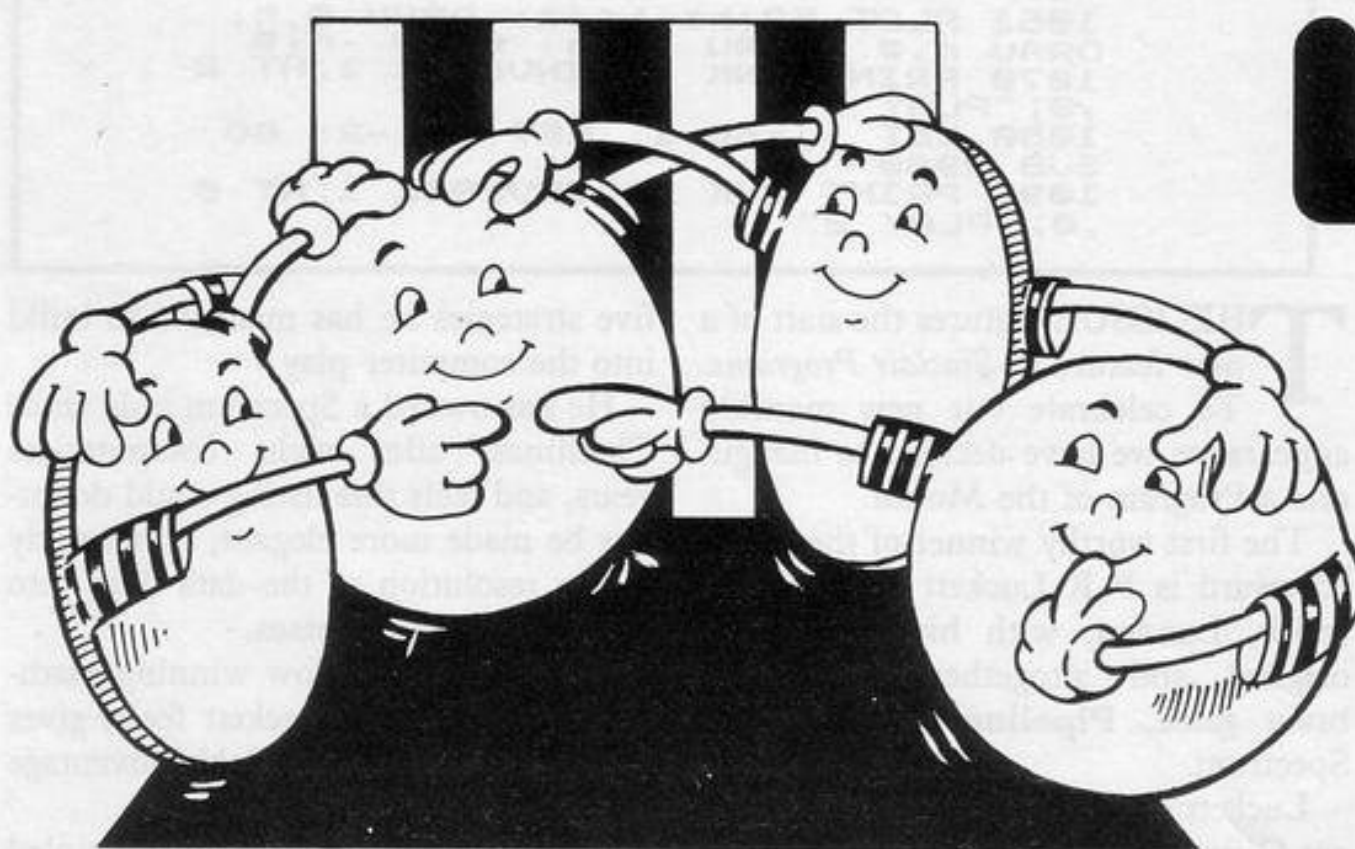
If you are quick enough to position yourself under an opening you can proceed to the next level by pressing E. When you reach screen-top your time will be displayed.

**Climber** was written by David Cockburn of Manchester. (1K ZX-81).

# CLIMBER

```
4 REM "A CLIMBER"
5 LET S=VAL "0"
10 LET X=VAL "19"
20 LET Y=1
25 LET Q=INT (RND*18)+1
30 FOR A=1 TO 9
40 PRINT AT A*2,1;"(eighteen i
  nverse SPACES)"
50 NEXT A
65 FOR W=0 TO 15
66 LET S=S+1
```

```
80 LET Y=Y+(INKEY#="0")-(INKEY
  #="1")
90 PRINT AT X-1,Q;" "
100 IF INKEY#="E" AND Y=Q THEN
  LET X=X-2
110 PRINT AT X,Y-1;" A "
112 IF X=1 THEN GOTO 300
115 IF INKEY#="E" AND Y=VAL "Q"
  THEN GOTO 21
120 NEXT W
130 GOTO 25
```



# LINK4

**C**ELIA SIMS of Gt Yarmouth, Norfolk has managed to squeeze a **Link 4** game on to an unexpanded ZX-81. The display is surprisingly complete, even to the extent that the counters can be seen falling down-screen into position on the frame.

Link 4 is a version of the parlour game for two people in which you are required to place four counters in a row before your opponent. In this listing, the frame for the counters is represented by the numbers 1 to 8 and you are requested to enter the number appropriate to the column you wish to occupy.

The four counters can align horizontally, vertically or diagonally. Black always leads, so players should take turns in using it.

The listing does not check for winning lines so it is up to the player to shout "Yippee" as appropriate. (1K ZX-81).

```
10 CLS
20 PRINT "CONNECT 4"
30 PRINT AT 21,1;"12345678"
40 FOR X=6 TO 1 STEP -1
50 PRINT AT X+14,0;7-X
60 NEXT X
70 LET G=0
80 LET C#="66666666"
100 IF G<>0 THEN GOTO 200
110 LET G#="(inverse SPACE)"
120 GOTO 300
200 LET G#="(graphic H)"
300 LET G=NOT G
310 PRINT AT 2,0;G#;" COLUMN?"
400 INPUT C
410 IF C<=0 OR C>=9 THEN GOTO 4
  00
420 IF C#(C)="0" THEN GOTO 400
430 PRINT AT 2,0;" "
500 FOR X=5 TO VAL (C#(C))+13 S
  TEP 1
510 PRINT AT X,C;G#
520 PRINT AT X,C;" "
530 NEXT X
540 PRINT AT X,C;G#
600 LET C#(C)=STR# (VAL (C#(C))
  -1)
700 GOTO 100
```





# SPECTRUM MORSE

**S**PECTRUM MORSE, an excellent Morse code training program, must be one of the most effective educational listings we have published. It is difficult to think of any other method of home tuition which could work so well. The author of the routine, T Garner of Manchester, says that when Morse code is being studied "the individual letters should be sent from

the start at the speed the student wishes to attain. The space between the letters can be long at first, then reduced gradually, keeping the letters at the same speed and thus reducing the thinking time.

"The letters and numbers in the program are sent at approximately 15 words per minute. Selecting a low speed

gives longer thinking time. Proficiency at speed 10 should ensure that the student will have no difficulty with the receiving part of the Morse section in the radio amateurs' examinations."

A full list of instructions is given at the start of the program and the morse from the Spectrum speaker sounds extraordinarily life-like. (16K Spectrum).

```

0>REM © Tom Garner 1983
10 POKE 23658,8
20 DIM A$(36,5)
30 DIM B$(36)
40 LET C$="ABCDEFGHIJKLMNOPQRSTUVWXYZ"
RUUUXYZ1234567890"
50 FOR N=1 TO 36
60 LET B$(N)=C$(N)
70 READ A$(N)
80 NEXT N
90 DATA "ABCCC","BAACC","BABAC"
"BAACC","ACCCC","AABAC","BBACC"
"AAAA","AACCC","ABBBC","BABCC"
"ABAAC"
100 DATA "BBCCC","BACCC","BBBCC"
"ABBAC","BBABC","ABACC","AAACC"
"BBCCC","ABCCC","AAABC","ABCCC"
110 DATA "BABBC","BABBC","BBABC"
"ABBBB","ABBBB","AABBB","AABBB"
"AAAAA","BAAAA","BBAAA","BBAAA"
"BBBBB","BBBBB"
120 GO TO 380
130 REM SET UP SPEED
140 INPUT "SPEED 1 TO 10 :";I
IF I>10 OR I<1 THEN GO TO 140
150 LET A=.06: LET B=.18: LET C=
0: LET D=10/I
160 GO TO 400
170 REM GENERATE BLOCK OF 4 FIG
URES AND SOUND CODE
180 DIM E$(4,1)
190 FOR M=1 TO 4
200 DIM D$(4,5)
210 LET R=INT (RND*36+1)
220 LET D$(M)=A$(R)
230 LET E$(M)=B$(R)
240 FOR N=1 TO 5
250 BEEP VAL D$(M,N),15
260 NEXT N
270 NEXT M
280 PAUSE B*D*50
290 NEXT M
291 PAUSE .42*D*50
300 IF Z=2 THEN GO TO 1000
310 INPUT "ENTER INTERPRETATIO
N :";Q$
320 LET P$=E$(1)+E$(2)+E$(3)+E$
(4)
330 IF Q$=P$ THEN PRINT F;" RIG
HT"

```

```

340 IF Q$=P$ THEN LET P=P+1
350 IF Q$=P$ THEN PRINT F;" Y
OU ENTERED ";Q$;" IT WAS ";P$
360 PAUSE 200
370 RETURN
380 PRINT " M O R S E T R A
I N E R "
R NUMBERS AND "A BLOCK OF FOU
R SELECTIONS AT "RANDOM AND YOU W
ILL BE ASKED "TO INTERPRET THEM.
IF YOU ARE "WRONG THEN YOU WIL
L BE ABLE "TO COMPARE YOUR INTE
RPRETATION WITH THE CORRECT ANS
WER. "SPEED 10 WILL GIVE APPR
OX 15 "WORDS PER MINUTE. SLOWER
SPEEDS "WILL INCREASE THE INTE
RVAL "BETWEEN LETTERS TO GIVE Y
OU "MORE TIME FOR INTERPRETATIO
N.
390 GO SUB 130
400 PRINT "HOW MANY BLOCKS ?
410 INPUT I: PRINT I: LET Z=0
420 INPUT "DO YOU WANT TO INPU
T YOUR ANSWER 1. AFTER EACH BLOC
K 2. WHEN SEQUENCE COMPLETE(E
NTER 1 OR 2)";J
440 IF J=2 THEN LET Z=2
450 CLS
460 LET P=0
465 DIM U$(I,4)
470 FOR F=1 TO I
480 GO SUB 170
490 NEXT F
495 IF Z=2 THEN GO TO 1100
500 PRINT "YOU WERE CORRECT "
P;" TIMES OUT OF ";I
505 GO TO 1900
510 PRINT "ENTER 'Y' FOR AN
OTHER GO."
520 INPUT U$
530 IF U$="Y" THEN CLS
540 IF U$="Y" THEN GO TO 380
550 IF U$="Y" THEN STOP
1000 REM
1010 LET U$(F)=E$(1)+E$(2)+E$(3)
+E$(4)
1020 GO TO 490
1100 CLS
1110 PRINT "ENTER YOUR ANSWER FO

```

```

R EACH BLOCK": LET S=0
1120 FOR F=1 TO I
1130 INPUT Q$
1140 PRINT F;
1150 IF Q$=U$(F) THEN PRINT " CO
RRECT. " LET S=S+1
1160 IF Q$=U$(F) THEN PRINT " Y
OU GAVE ";Q$;" IT WAS ";U$(F)
1170 NEXT F
1180 PRINT "YOU WERE CORRECT ";S
" TIMES OUT OF ";I
1900 INPUT "DO YOU WANT TO SEE
THE MORSE / ALPHABET (Y/N)?";I$
1910 IF I$="Y" THEN GO TO 510
1920 CLS
2000 PRINT "TAB 1;"A .-";TAB 13
" M -.-";TAB 25;"Y -.-";
2010 PRINT TAB 1;"B -.-";TAB 13
"N -.-";TAB 25;"Z -.-";
2020 PRINT TAB 1;"C -.-";TAB 13
"O -.-";TAB 25;"1 -.-";
2030 PRINT TAB 1;"D -.-";TAB 13;
"P -.-";TAB 25;"2 -.-";
2040 PRINT TAB 1;"E -.-";TAB 13;"Q
-.-";TAB 25;"3 -.-";
2050 PRINT TAB 1;"F -.-";TAB 13
"R -.-";TAB 25;"4 -.-";
2060 PRINT TAB 1;"G -.-";TAB 13;
"S -.-";TAB 25;"5 -.-";
2070 PRINT TAB 1;"H -.-";TAB 13
"T -.-";TAB 25;"6 -.-";
2080 PRINT TAB 1;"I -.-";TAB 13;"
U -.-";TAB 25;"7 -.-";
2090 PRINT TAB 1;"J -.-";TAB 13
"V -.-";TAB 25;"8 -.-";
2100 PRINT TAB 1;"K -.-";TAB 13;
"W -.-";TAB 25;"9 -.-";
2110 PRINT TAB 1;"L -.-";TAB 13
"X -.-";TAB 25;"0 -.-";
2120 FOR M=0 TO 24 STEP 12
2130 FOR N=1 TO 12
2140 PRINT AT N,M; FLASH 1;" "
PAUSE 50
2150 FOR P=1 TO 5
2160 BEEP VAL A$(M+N),P,15
2170 NEXT P
2180 PRINT AT N,M;" "
2190 NEXT N
2200 NEXT M
2210 GO TO 510

```









```

> ?"
9023 INPUT Z$
9024 IF Z$(1)="Y" THEN RUN
9025 IF Z$(1)="N" THEN GOTO 9029
9026 GOTO 9023
9029 GOTO 9000
9500 PRINT "
                                     maze-monste
                                     rs
                                     ck"
9501 PRINT
9502 PRINT
9510 PRINT "YOU HAVE TO FIND YOU
R WAY OUT OF A 22X32 MAZE, WHICH
IS STOCKED WITH TREASURE, SWORD
S, AND MONSTERS."
9520 PRINT "YOU START OFF AS AN
X, AND YOU GET A SWORD BY MOVIN
G YOUR X OVER THE (is)."
9525 PRINT
9530 PRINT "THERE IS TREASURE; (
it),
                                     THERE ARE MONSTER
S; (im),
                                     THERE ARE SWOR
DS; (is)."
9535 PRINT
9540 PRINT "POINTS:"
9550 PRINT "TREASURE: 1000 PTS.;
                                     KILLING A MONSTER: 1
00 PTS."
9555 PRINT
9560 PRINT "
                                     ANY KEY TO CO
NTINUE."
9570 IF INKEY$="" THEN GOTO 9570
9580 CLS
9590 PRINT "AS YOU MOVE, THE COR
RIDOR WILL SCROLL PAST YOU, DEP
ENDING ON WHICH KEY YOU PRESS.
THIS GIVES THE EFFECT THAT THE
CORRIDOR IS MOVING PAST YOU."
9595 PRINT
9600 PRINT "CONTROLS:"
9610 PRINT "8-RIGHT,"
9620 PRINT "5-LEFT,"
9630 PRINT "6-DOWN,"
9640 PRINT "7-UP."
9645 PRINT
9650 PRINT "(im)=MONSTER,"
9660 PRINT "(is)=SWORD,"
9670 PRINT "(it)=TREASURE,"

9680 PRINT "
                                     =THIS WAY."

```

```

9681 PRINT "
                                     ANY KEY TO CON
TINUE."
9682 IF INKEY$="" THEN GOTO 9682
9683 CLS
9690 PRINT "IF YOU TOUCH THE WAL
LS OR THE BORDER ROUND THE MAZ
E, YOU WILL GET FRAZZLED TO A CR
ISP."
9695 PRINT "
                                     (isp)=THE BORDER,"
9697 PRINT "
                                     (sh)=THE WALLS."
9698 PRINT
9701 PRINT "
                                     THE OBJECT OF THE
GAME IS TO FIND THE EXIT (MAR
KED (ik)) WITH AS MUCH TREASURE A
S POSSIBLE."
9705 PRINT "
                                     BUT BEWARE; DO NOT
USE UP ALL THE SWORDS, BECAUS
E THERE ARE MONSTERS GUARDING
THE ESCAPE ROUTE."
9700 PRINT
9710 PRINT "
                                     ANY KEY TO BE
GIN."
9720 IF INKEY$="" THEN GOTO 9720
9720 RETURN

```



# HIGH NOON

```

2 LET W=VAL "11"
3 LET E=CODE "$"
4 LET F=CODE "."
5 LET L=CODE "E"
7 LET H=CODE "?"
0 LET T=CODE "(gs)"
9 LET O=CODE "("
10 PRINT AT T,H;"(99:94)";AT W,
F;"(99:99:96)";AT L,F;"(92:98:9
2)";AT E,F;"(isp:95:91)"
30 PAUSE 0
40 CLS
50 PRINT AT T,H;"(99:isp:94)";
AT W,O;"(99)";AT L,H;"(92:isp:99)";
AT E,H;"(99:isp:94)";AT F,H;"
(99:isp:9w)";AT H,H;"(2ksp:isp)"
60 PAUSE 0
65 CLS
90 PRINT AT T,F;"(2f99)";AT W,
E;"(4kisp)";AT L,F;"(2kisp)";AT
E,F;"(2k9a)";AT F,L;"(6kisp)";AT
H,L;"(isp:isp:2kisp:isp:isp)"
100 PRINT AT O,F;"(2kisp)";AT C
ODE "0";E;"(99:2kisp:9t)";AT COD
E "0";E;"(isp:2ksp:isp)"
105 PRINT AT CODE "<";E;"(isp:2
ksp:isp)"
110 PAUSE 0*PI
120 IF INKEY$("<") THEN STOP
140 PRINT AT CODE "0";E;"(isp:2k
isp:isp)";AT O, CODE "E";"(10:isp:2
kisp:isp:io)"
150 FOR Z=PI TO RND*CODE "(9d)"
160 IF INKEY$("<") THEN PRINT "G
OT HIM";K
170 NEXT Z
180 PRINT "GOTCHA"

```

**T**IM DERBY of Hedge End, Southampton has, by devising a relatively simple game, managed to incorporate a very good graphics

display in this program for the 1K ZX-81.

The cowboy walks quickly towards you. Once his guns appear in his hands

you must shoot him by pressing any key, before he shoots you. Good reactions are needed; your reviewer managed to shoot the cowboy only once.





A LIST of commodities is displayed on the screen, together with the current value of one share. When it is your turn you may buy or sell shares in the commodity available at that time. You have the choice of playing yourself, the computer or a friend.

**Stock Market** was written for the 16K ZX-81 by Stephen Gibbon of Whickham, Newcastle-upon-Tyne.

# STOCK MARKET

```
80 CLS
90 GOSUB 6500
100 SLOW
110 FOR J=1 TO Q
120 PRINT AT 1,7;J,"
    "AT 1,16;M(J)
130 LET E=INT (RND*12)+1
140 LET A=0+12*(J=2)
150 LET C=E+A
160 PRINT AT E+4,0;CHR$ (CODE A
    *(E,1)+120)
170 IF J=1 AND L=31 THEN GOTO 2
    000
180 PRINT AT 18,0;"BUY OR SELL?"
```

```
190 LET O=CODE INKEY$
200 IF O=0 THEN GOTO 190
210 IF O>53 AND O<57 OR O=39 OR
    O=50 THEN GOTO 250
220 GOSUB S
230 PRINT "PARDON?"
240 GOTO 190
250 GOSUB S
260 GOTO 3000+1000*(O=39)+1500*
    (O=56)+6900*(O=55)-2730*(O=50)
270 PRINT AT 1,16;"
    "AT 1,16;M(J)
280 GOSUB S
290 GOSUB 700
300 NEXT J
```

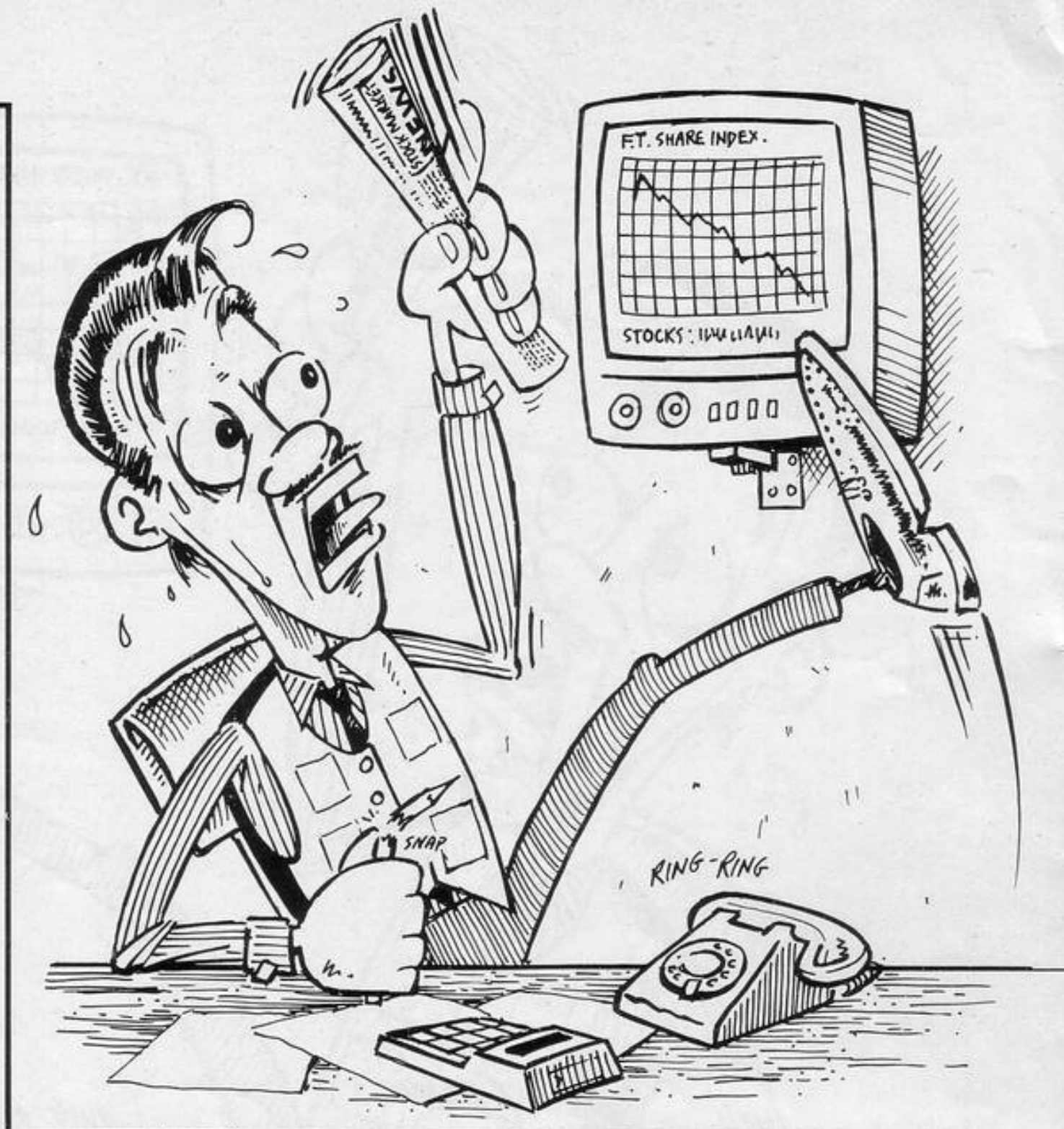
```
310 GOSUB 1000
320 GOTO 110
500 PRINT AT 18,0;"
    "AT 18,0;
510 RETURN
600 FOR I=1 TO 120
610 NEXT I
620 RETURN
700 PRINT AT E+4,0;A*(E);TAB 13
    "TAB 18;"TAB 23;"
    "AT E+4,13;N(E);TAB 18;N
    (E+12);TAB 23;C(E)
710 RETURN
1000 FOR I=1 TO 12
```



```

1010 IF Z(I)<>0 THEN GOTO 1030
1020 LET Z(I)=-1+2*(VAL X#>3)
1030 LET T=VAL X#
1040 LET U=VAL X#
1050 IF T+U=7 THEN LET Z(I)=-Z(I)
1060 IF T=U THEN LET Z(I)=0
1070 LET C(I)=C(I)+Z(I)*2*(T+U)
1080 IF C(I)<1 THEN LET C(I)=1
1090 IF C(I)>1E6 THEN LET C(I)=1E6
1100 PRINT AT I+4,23;"
      AT I+4,23;C(I)
1110 NEXT I
1120 RETURN
2000 IF N(C)<1 OR M(J)>(INT (RND*7)+5)*C(E)) THEN GOTO 2030
2010 LET F=N(C)
2020 GOTO 4540
2030 LET F=INT (RND*(M(J)/C(E)))
2040 IF F+N(C)>9999 THEN GOTO 2030
2050 GOTO 5000
3000 PRINT "SURE ABOUT FINISHING
      ( Y OR N )?"
3010 IF INKEY$="Y" THEN GOTO 3040
3020 IF INKEY$="N" THEN GOTO 270
3030 GOTO 3010
3040 CLS
3050 PRINT "I HOPE YOU ENJOYED THE GAME"
3060 FOR I=1 TO 12
3070 LET M(1)=M(1)+(N(I)*C(I))
3080 LET M(2)=M(2)+(N(I+12)*C(I))
3090 NEXT I
3100 PRINT AT 10,0;"PLAYER 1",,
      , " £";M(1)
3110 IF Q=1 THEN GOTO 3130
3120 PRINT AT 14,0;"PLAYER 2",,
      , " £";M(2)
3130 PRINT AT 19,5;"ANOTHER GO (
      Y OR N )?"
3140 IF INKEY$="Y" THEN RUN
3150 IF INKEY$="N" THEN STOP
3160 GOTO 3140
4000 PRINT "HOW MANY SHARES OF "
      ,A$(E)," DO YOU WISH TO PURCHASE ?"
4010 INPUT F
4020 IF F*(C(E)*M(J)) OR ABS INT F
      <>F THEN GOTO 4010
4030 GOTO 5000
4500 IF N(C)=0 THEN GOTO 4600
4510 PRINT "HOW MANY SHARES OF "
      ,A$(E)," DO YOU WISH TO SELL?"
4520 INPUT F
4530 IF F*(N(C)) OR ABS INT F<>F THEN GOTO 4520
4540 LET F=-F
4550 GOTO 5000
4600 PRINT "YOU HAVE NONE OF THE
      SE SHARES"
4610 GOSUB P
4620 GOSUB S
4630 GOTO 290
5000 LET M(J)=M(J)-(C(E)*F)
5010 LET N(C)=N(C)+F
5020 LET C(E)=C(E)+INT ((RND*(C(E)/2))*F/4)
5030 IF C(E)<1 THEN LET C(E)=1
5040 IF C(E)>1E6 THEN LET C(E)=1E6
5050 IF N(C)>9999 THEN GOTO 5500
5060 GOTO 270
5520 LET N(C)=N(C)-F
5530 PRINT "A DEALER HAS STOLEN
      ,F," SHARES"
5540 GOSUB P
5550 GOSUB S
5560 GOTO 270
6500 PRINT TAB 9;"INSTRUCTIONS";
      TAB 9;"(12*97)";,"THERE ARE THREE DIFFERENT PLAYER ARRANGEMENTS:
      ,,,,,,1) TWO PLAYER GAME,,,,,2) ONE PLAYER GAME,,,,,3) ONE PLAYER V THE ZX81,,,,,PRESS KEY 1 , 2
5580 GOSUB S
5510 LET F=INT ((RND*200)+N(C))-999)

```



```

OR 3 TO INDICATE CHOICE"
6510 LET L=CODE INKEY$
6520 IF L<29 OR L>31 THEN GOTO 6510
6530 CLS
6540 LET Q=1+1*(L<>30)
6550 PRINT "THE GAME COMPRISES OF
      A TABLE WHICH GIVES INFORMATION ABOUT ALL OF THE SHARES",,
      , "EACH LINE OF THE TABLE SHOWS:",
      , "1) NAME OF THE SHARE E.G. GOLD",, "2) THE NUMBER OF THIS TYPE OF
      SHARE HELD BY EACH PLAYER",, "3) COST PER SHARE E.G. £ 350",,
      , "-----",, "PLAYERS TAKE TURNS"
      AND L=29);("YOU ARE PLAYER 1" AND L=30);("YOU ARE PLAYER 2" AND L=31);, "PRESS A KEY TO CONTINUE"
6560 IF INKEY$="" THEN GOTO 6560
6570 CLS
6580 PRINT "THE FIRST LETTER OF THE SHARE INPLAY IS INVERTED E.G.
      . 9OLD",, "THE SHARE IS CHOSEN AT RANDOM",, "THE PROMPT IS "BUY OR SELL?"",, "PRESS 1 OF THE FOLLOWING KEYS:",, "B ALLOWS YOU TO BUY SHARES",, "S ALLOWS YOU TO SELL SHARES",, "Q ENDS THE GAME",, "R SAVES THE GAME ON TAPE",, "M FINISHES YOUR GO",,
      , "Press a key to start"
6590 IF INKEY$="" THEN GOTO 6590
6600 CLS
6610 PRINT "THERE WILL BE A SHORT DELAY"
6620 DIM A$(12,12)
6630 DIM M(2)
6640 DIM C(12)
6650 DIM N(24)
6660 LET M(1)=3E3
6670 LET M(2)=M(1)
6680 LET A$(1)="GOLD"
6690 LET A$(2)="R. ELEMENTS"
6700 LET A$(3)="DIAMONDS"

```

```

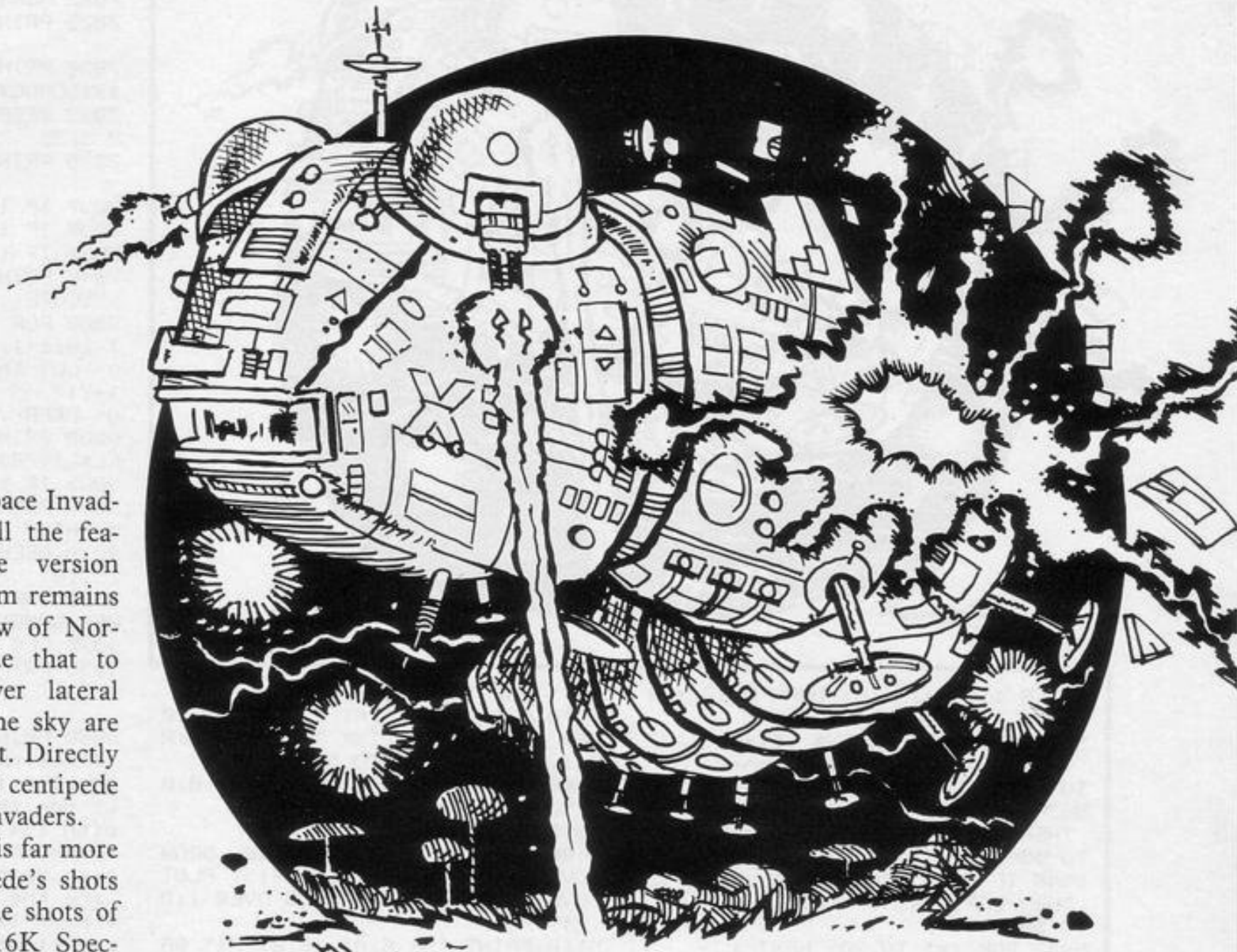
6710 LET A$(4)="PLATINUM"
6720 LET A$(5)="GEMS"
6730 LET A$(6)="COMP. PARTS"
6740 LET A$(7)="MICROFILM"
6750 LET A$(8)="DRUGS"
6760 LET A$(9)="WEAPONS"
6770 LET A$(10)="MISSILES"
6780 LET A$(11)="PLANE SPARES"
6790 LET A$(12)="SILVER"
6800 LET C$="350500300400200100400150200075200"
6810 DIM Z(12)
6820 FAST
6830 FOR I=0 TO 11
6840 LET Z(I+1)=0
6850 LET N(I+1)=0
6860 LET N(I+13)=0
6870 LET C(I+1)=VAL C$(I*3+1 TO I*3+3)
6880 NEXT I
6890 CLS
6900 PRINT TAB 10;"STOCK MARKET"
      , "PLAYER MONEY=£",, " SHARE
      -PL 1-PL 2-COST",,
      , "-----"
6910 FOR I=1 TO 12
6920 PRINT A$(I);TAB 12;"-";N(I)
      , " -";N(I+12);TAB 22;"-";C(I)
6930 NEXT I
6940 LET X#=INT (RND*6)+1
6950 LET P=600
6960 LET S=500
6970 PRINT "-----"
6980 RETURN
9910 PRINT "CONNECT TAPE THEN PRESS "S"
9920 IF INKEY$<>"S" THEN GOTO 9920
9930 PRINT "START TAPE"
9940 GOSUB P
9950 SAVE "STOCK MARKET"
9960 PRINT "STOP TAPE"
9970 GOSUB P
9980 GOTO 280
9990 SAVE "STOCK MARKET"
9999 RUN

```



**T**HE SEARCH for a Space Invaders-type game with all the features of the arcade version continues. The major problem remains one of speed. Timothy Shaw of Norwich, Norfolk has overcome that to some extent by some clever lateral thinking. The invaders in the sky are unaggressive and do not shoot. Directly above you, though, is a giant centipede which shoots to defend the invaders.

Because of its proximity it is far more difficult to avoid the centipede's shots than it would be to avoid the shots of the more distant invaders (16K Spectrum).



# SPECVADERS

```

15 CLS : PAPER 0: INK 7: BORDE
R 1: CLS
30 LET hs=0
40 CLS : PAPER 0: INK 7: BORDE
R 1: CLS
50 GO SUB 9050
90 LET c=0
100 LET l=3
150 CLS
200 LET s=0
205 RESTORE 260
210 FOR r=1 TO 8
220 READ d$
230 FOR u=0 TO 7
240 READ a: POKE USR d$+u,a: NE
XT u
250 NEXT r
260 DATA "a",231,36,126,126,126
,126,36,231
270 DATA "b",0,85,127,55,62,20,
34,65
280 DATA "c",60,102,102,219,219
,126,90,129
290 DATA "d",0,0,24,60,126,255,
255,255
300 DATA "e",0,24,60,90,153,153
,255,90
310 DATA "f",0,24,60,126,255,25
5,66,66
320 DATA "g",0,85,255,251,251,0
,223,223
330 DATA "h",129,0,33,4,80,4,16
0,9
400 LET a=15
402 PRINT INK 0: PAPER 3:AT 0,2
2:"HIGH: ";hs
403 PRINT AT 0,0: INK 0: PAPER
3:"SCORE:"

```

```

405 PRINT INK 4:AT 21,0:"LIVES
d d d"
410 LET x=6: LET y=6: LET z=6
412 LET h=20
415 DIM x$(3,h)
420 LET x$(1)=" a a a a a a a
a a "
430 LET x$(2)=" b b b b b b b
b b "
440 LET x$(3)=" c c c c c c c
c c "
470 IF h<0 THEN LET h=2
500 PRINT INK 4: PAPER 0: BRIGH
T 1:AT 1,x)x$(1,2 TO h)
520 PRINT INK 2: PAPER 0: BRIGH
T 1:AT 3,y)x$(2,2 TO h)
540 PRINT INK 6: PAPER 0: BRIGH
T 1:AT 5,z)x$(3,2 TO h)
560 IF l<=0 THEN PRINT AT 21,6:
" " : GO TO 9000
600 PRINT INK 6: PAPER 0:AT 20,
a) " d "
640 IF INKEY$="q" THEN GO TO 70
00
650 IF INKEY$=" " THEN GO SUB 5
000
660 IF INKEY$="a" AND a>2 THEN
LET a=a-1
665 IF INKEY$="d" AND a<27 THEN
LET a=a+1
670 PRINT INK 6: PAPER 0:AT 20,
a) " d "
680 GO SUB 2000
690 LET g=INT (RND*3): IF g=0 T
HEN LET x=x+1
700 IF g=1 THEN LET y=y+1
710 IF g=2 THEN LET z=z+1

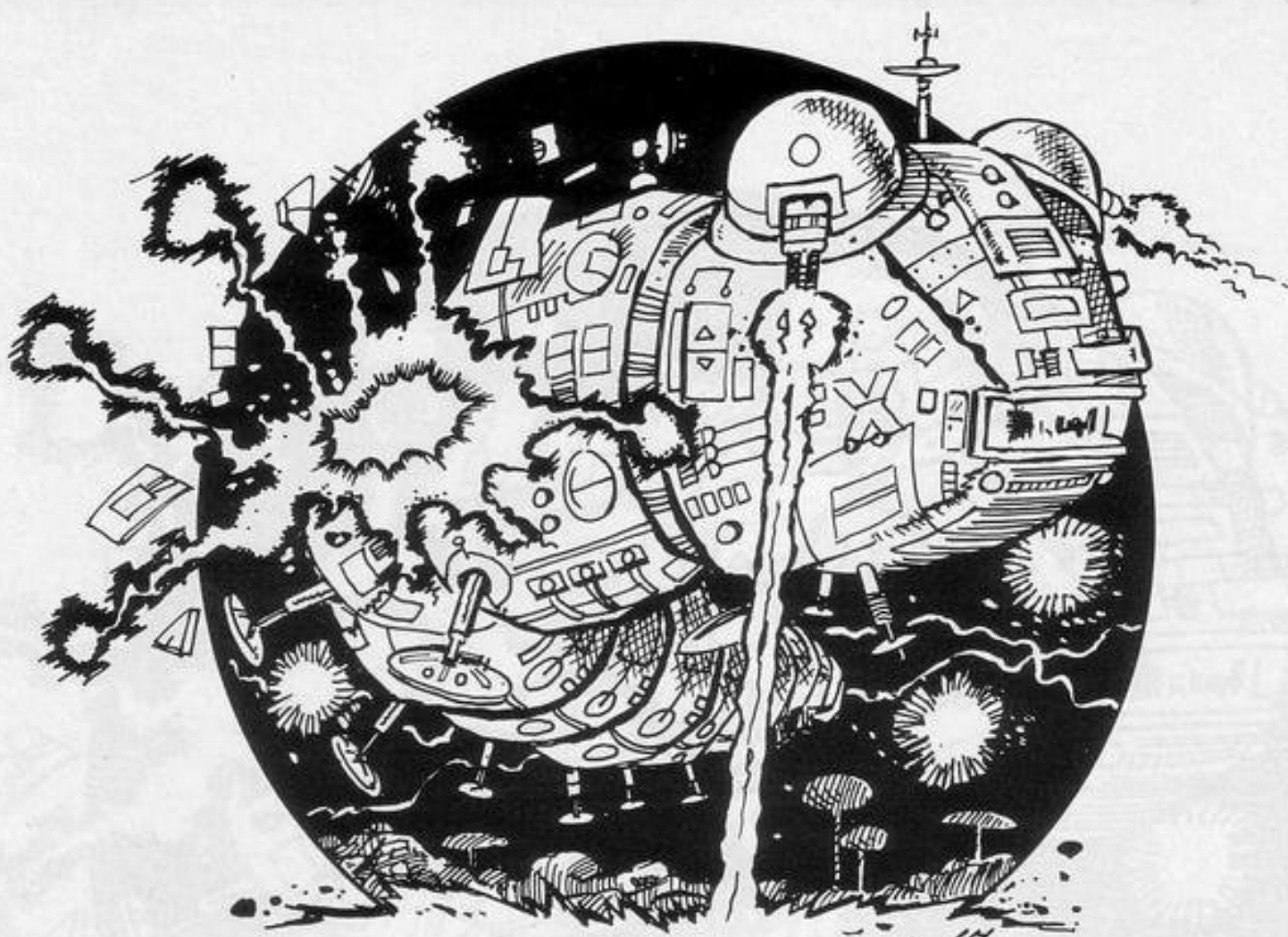
```

```

720 IF x>7 THEN LET x=6
730 IF y>7 THEN LET y=6
740 IF z>7 THEN LET z=6
750 PRINT INK 5: PAPER 2:AT 20,
0,"gg":AT 20,30,"gg"
760 GO TO 470
2000 PRINT INK 2: PAPER 0:AT 16,
c) " fffe "
2005 PRINT AT 16,26: INK 5: PAPE
R 0:"ggggggg"
2007 PRINT AT 16,0: INK 5:"ggggg
g"
2010 LET c=c+1: BEEP .001,20: IF
c>25 THEN LET c=6
2020 LET d=INT (RND*3)
2025 INK 7
2030 IF d<>0 THEN GO TO 3000
2040 PLOT OVER 1,c*8+32,39: DRAW
OVER 1,0,-25: BEEP .009,30: PLO
T OVER 1,c*8+8,39: DRAW OVER 1,0
,-25: PLOT OVER 1,c*8+32,39: DRA
W OVER 1,0,-25: PLOT OVER 1,c*8+
8,39: DRAW OVER 1,0,-25
2050 PRINT INK 4: PAPER 0:AT 16,
c) " fffe "
2055 PRINT AT 16,26: INK 5: PAPE
R 0:"ggggggg"
2060 IF c>25 THEN LET c=0
2070 IF CODE SCREEN$ (20,c+4)<>3
2 THEN GO SUB 8000: GO TO 3000
2080 IF CODE SCREEN$ (20,c+1)<>3
2 THEN GO SUB 8000: GO TO 3000
3010 RETURN
5000 IF SCREEN$ (16,a+1)="" THEN
GO TO 5100
5010 PLOT OVER 1,a*8+12,16: DRAW
OVER 1,0,150: BEEP .02,40: PLOT

```





```
N GO TO 450
7020 IF CODE SCREEN# (5,b)=0 THE
N GO TO 450
7022 NEXT b
7025 PRINT AT 10,0;"
```

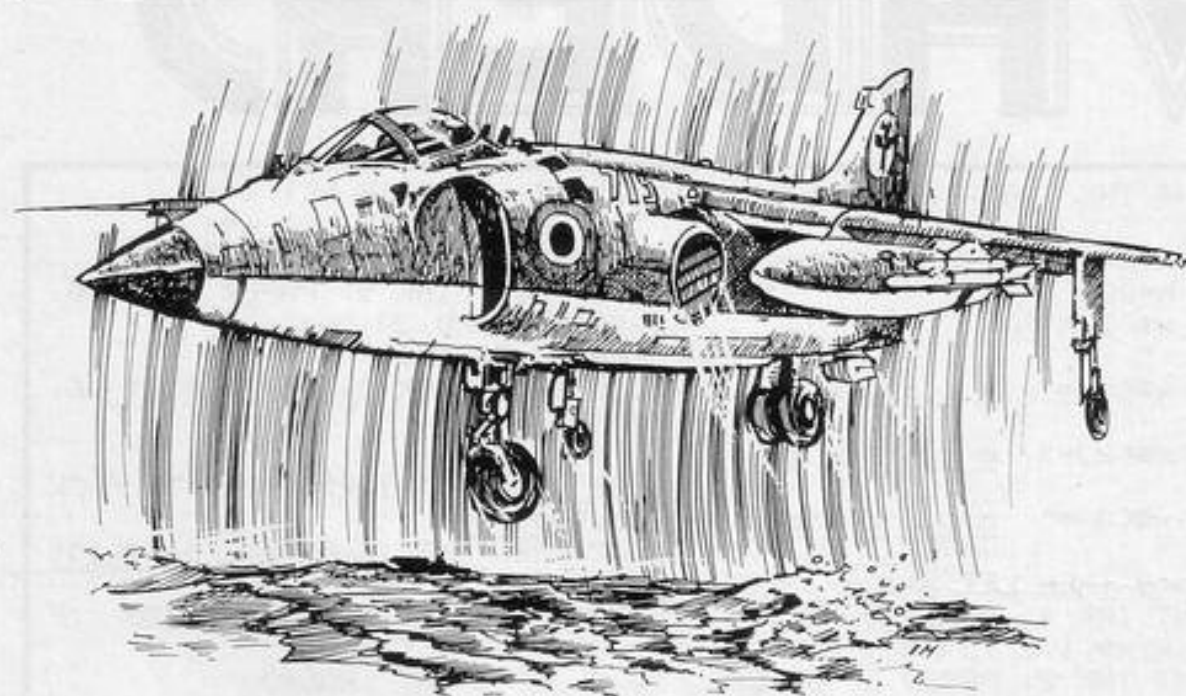
```
"
7030 PRINT FLASH 1;AT 10,0;"****
***BONUS*END*OF*SHEET*****"
7033 BEEP .5,10: BEEP .5,-7: BEE
P 2,35
7035 PRINT AT 10,0;"
```

```
"
7037 IF 1=3 THEN LET s=s+100
7038 IF 1=2 THEN LET s=s+75
7039 IF 1=1 THEN LET s=s+50
7040 PRINT INK 0; PAPER 3;AT 0,0
;"SCORE: ";s: GO TO 410
8000 FOR 9=1 TO 5: PRINT INK 9;A
T 20,a+1;"d": BEEP .1,9*2: NEXT
9: LET 1=1-1: PRINT INK 3;AT 21,
1+7;" ": BEEP .5,10: BEEP .2,-1
0: BEEP .5,35: RETURN
9000 PRINT FLASH 1;AT 10,0;"***A
LL*LIVES*LOST*END*OF*GAME***"
9005 IF s>hs THEN LET hs=s
9007 PRINT INK 0; PAPER 3;AT 0,2
2;"HIGH: ";hs
9010 BEEP .5,0: BEEP .5,0: BEEP
.5,10
9020 INPUT "PRESS ENTER FOR ANOT
HER GAME"; LINE z#
9030 CLS : GO TO 40
9050 PRINT AT 0,0; INK 0; PAPER
4;" SPECTRUM INVADERS
```

```
"
9060 PRINT "In this version of
spaceinvaders"" you must dest
roy the invaders"" but watch o
ut for the moving"" centipede
with its double lazer""The inv
aders sometimes disappear"" to
o so destroy them fast""These
are the keys"" A-to move th
e base left"" D-to move the b
ase right"" SPACE-fire Q
-New sheet"
9065 PRINT FLASH 1;AT 21,10;"GOD
D LUCK!!"
9070 INPUT "Press enter to play"
; LINE z#
9075 RETURN
```

```
OVER 1;a*8+12,16: DRAW OVER 1,0
,150
5020 IF CODE SCREEN# (5,a+1)<>32
THEN LET s=s+10: LET h=h-2: GO
TO 5050
5030 IF CODE SCREEN# (3,a+1)<>32
THEN LET s=s+20: LET h=h-2: GO
TO 5060
5040 IF CODE SCREEN# (1,a+1)<>32
THEN LET s=s+30: LET h=h-2: GO
TO 5070
5042 FOR i=1 TO 30: NEXT i
5045 RETURN
5050 PRINT INK 7;AT 5,a+1;"h": B
EEP .2,7: PRINT PAPER 0;AT 5,a+1
;" ": GO TO 5080
5060 PRINT INK 7;AT 3,a+1;"h": B
EEP .2,7: PRINT PAPER 0;AT 3,a+1
```

```
;" ": GO TO 5080
5070 PRINT INK 7;AT 1,a+1;"h": B
EEP .2,7: PRINT INK 7; PAPER 0;A
T 1,a+1;" ": GO TO 5080
5080 PRINT INK 0; PAPER 3;AT 0,0
;"SCORE: ";s
5090 RETURN
5100 PLOT OVER 1;a*8+12,16: DRAW
OVER 1,0,24: BEEP .01,-15: PLOT
OVER 1;a*8+12,16: DRAW OVER 1,0
,24
5110 PRINT INK 6;AT 10,8;"HIT BA
RRIER": BEEP .01,35: PRINT AT 10
,8;" ": RETURN
7000 FOR b=0 TO 31
7010 IF CODE SCREEN# (1,b)=0 THE
N GO TO 450
7012 IF CODE SCREEN# (3,b)=0 THE
```



**L**AND YOUR small aircraft on an aircraft carrier in the Atlantic. To do it successfully you must bear in mind that your fuel is running out rapidly, your airspeed increases with your level and the number of times you land, and that the ship below you is also moving. Move upwards with key "6", and down with key "7".

**Atlantic Lander** runs on the 1K ZX-81 and was written by A Powell and T Goodhand of Bracknell, Berkshire.

# ATLANTIC LANDER

```
20 LET S=VAL "0"
25 PRINT "INPUT LEVEL(1-5)"
27 INPUT Z
28 IF Z<VAL "0" OR Z>VAL "5" T
HEN GOTO VAL "27"
30 LET A=INT (RND*VAL "15")
40 LET F=VAL "50"
50 LET B=F-F
60 FOR C=VAL "25" TO VAL "0" S
TEP VAL "-1"
70 PRINT AT VAL "20";C;"(94*3%
sP:93)"
80 PRINT AT VAL "21";C;"(94*3%
isP:9e)"
90 PRINT AT A,B;"(2*9w)"
```

```
100 LET F=F-VAL "1"
105 IF F<VAL "0" THEN GOTO VAL
"240"
109 IF A=VAL "20" THEN GOTO VAL
"170"
110 LET A=A+(INKEY#="6")-(INKEY
#="7")
120 LET B=B+(Z/2)+(,3 AND Z=1)
121 IF INT B>VAL "30" THEN LET
B=VAL "0"
140 CLS
150 NEXT C
160 GOTO VAL "60"
170 IF INT B=C+VAL "1" OR INT B
=C+VAL "2" THEN GOTO VAL "200"
```

```
180 PRINT AT 20,0;"crash"
185 PRINT AT 0,0;"SCORE=";S
190 PRINT "FUEL=";F
195 STOP
200 PRINT "LANDED...(ANY KEY)"
210 LET S=S+INT (F/2)
215 LET Z=Z+.8
220 PAUSE 4E4
230 GOTO VAL "30"
240 FOR N=A TO VAL "21"
250 PRINT AT N,B;"(2*9w)";AT N,
B;" "
260 NEXT N
270 GOTO VAL "100"
```



```

1 BORDER 6: PAPER 0: INK 7
5 LET ov=0: CLS : GO TO 150
10 LET a=0: LET b=0: LET f=0:
LET f=0: LET i=.1
20 LET h1=0: LET v1=0
100 LET b=-(a*ra)/r: LET v=INT
(((ra-r)*SIN (a)-d*SIN (b))+.5):
LET h=INT (((ra-r)*COS (a)-d*CO
S (b))+.5)
110 IF f=2 THEN PLOT 128+h1,88+
v1: DRAW h-h1,v-v1
115 IF f<2 THEN LET f=f+1
120 LET h1=h: LET v1=v: LET a=a
+i
125 LET a$=INKEY$: IF a$="" THE
N GO TO 100
130 GO TO 310
150 PAPER 0: INK 7: CLS : PRINT
"      S P I R O G R A P H"

```

```

160 PRINT "      by R.WRIGH
T"
This Prog. Produces Patt
erns which can be generated by t
wo gears as follows:-

```

```

170 CIRCLE 60,51,40: CIRCLE 84,
51,16: INK 3: PLOT 60,51: DRAW 0
,40: PLOT 84,51: DRAW 0,16: PRIN
T AT 12,7,"R": PRINT AT 14,10,"r
": PLOT 94,51: DRAW 16,32: PLOT
94,51: DRAW 18,30

```

```

180 INK 7: PRINT AT 11,12,"Pen"
190 PRINT AT 10,16," The small
er":AT 11,16,"gear rotates":AT 1
2,16,"around the":AT 13,16,"insi
de of the":AT 14,16,"larger gear
"

```

```

200 PRINT AT 15,16,"Producing a
Pen":AT 16,16,"trace."

```

```

210 PRINT AT 17,16," Input R,r
and":AT 18,16,"radius of Pen":A
T 19,16,"in small circle"

```

```

220 PRINT AT 21,11,"Hit a key":
PAUSE 0

```

```

225 INPUT " Load A Pattern From
Tape?":x$: IF x$="y" THEN INPUT
"filename ":f$: CLS : LOAD f$C
ODE : PAUSE 0: GO TO 150

```

```

230 INPUT "Radius R (R<=85) ?":
ra

```

```

240 INPUT "Radius r ?":r

```

```

250 INPUT "Pen radius ?":d

```

```

255 INPUT "ink colour ?":in: IN
K in

```

```

256 INPUT "Paper Colour ?":PaP

```

```

300 PAUSE 50: IF ov=0 THEN PAPE
R PaP: CLS : GO TO 10

```

```

305 GO TO 10

```

```

310 INPUT "OverPrint another Pa
ttern ?":q$: IF q$="y" THEN LET
ov=1: GO TO 230

```

```

315 IF q$="y" THEN GO TO 10

```

```

320 INPUT "Printer copy ?":q$:
IF q$="y" THEN COPY

```

```

330 INPUT "Tape copy ?":q$: IF
q$="y" THEN INPUT "Filename ?":q
$: SAVE q$SCREEN$

```

```

340 GO TO 150

```



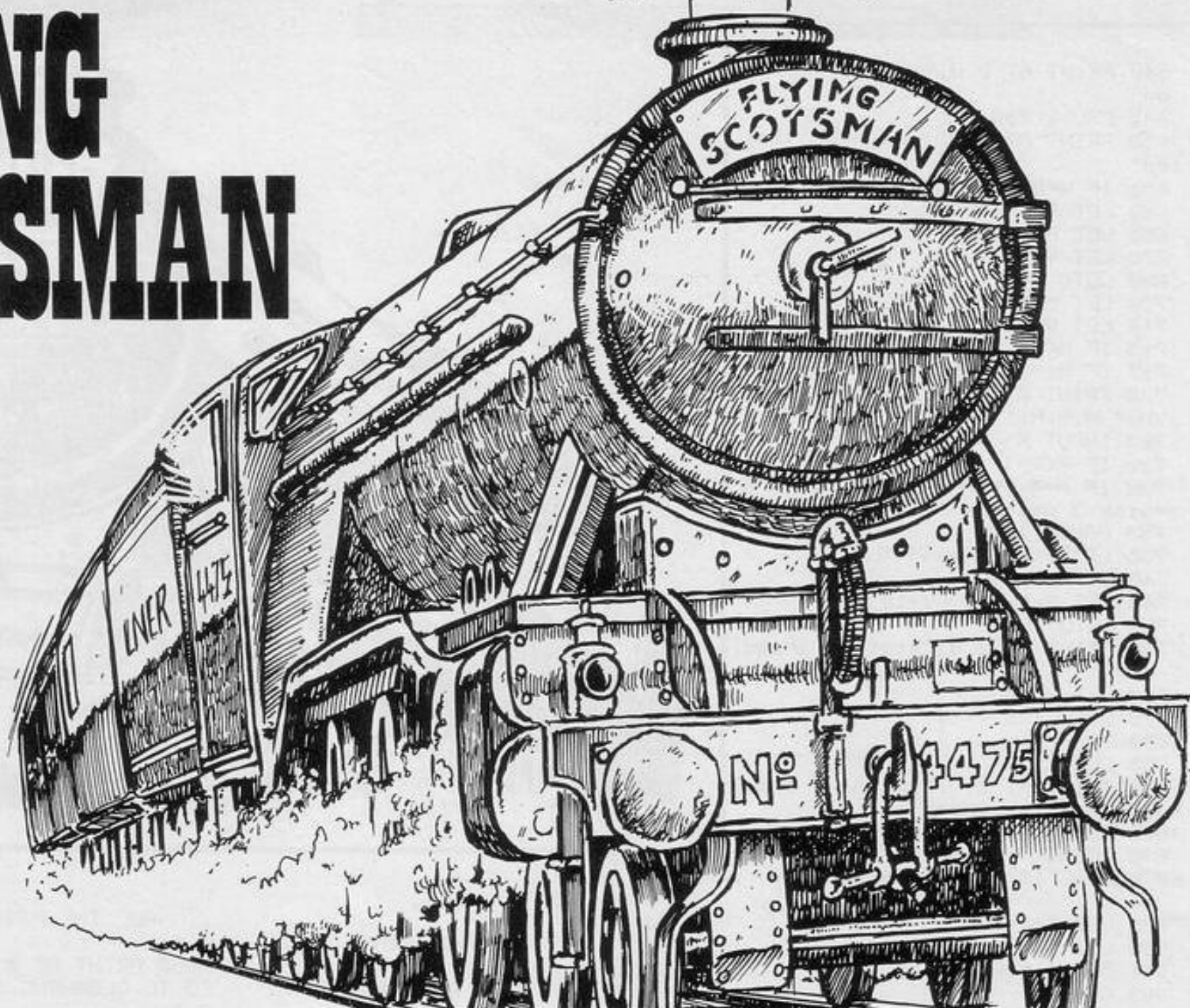
# SPIRODRAW

CHOOSE THE SIZE of a big circle, a small circle, and a pen. The pattern produced by putting the pen in the small circle and rolling it round in the large circle will be produced on-screen.

**Spirodrawing** was written for the 16K Spectrum by R Wright of Liss, Hampshire.



# FLYING SCOTSMAN



**D**RIVE THE Flying Scotsman the 400 miles from London to Edinburgh in your scheduled time. You are required to input the throttle regulator setting every 10 miles and your choice of setting will be based on several factors. If there is slack or a

station ahead you must brake immediately.

Watch the pressure gauge—it must not fall below 150. Watch your speed; it must not exceed 100 or fall below 0. Make sure that your setting takes the gradient ahead into account. Finally,

make sure that you are keeping close to your schedule. Arriving four hours late is just as much a failure as stalling en route.

Flying Scotsman was written for the 16K ZX-81 by Ian Kemp of Abingdon, Oxfordshire.

```

1 SLOW
2 PRINT AT 0.5;"4472 flying s
  cotsman"
3 PRINT AT 3.0;"TODAY YOU HAV
  E THE PRIVILEGE OF DRIVING THIS
  FAMOUS TRAIN FROM LONDON TO EDI
  NBURGH."
4 PRINT AT 7.6;"DISTANCE IS 4
  00 MILES AND SCHEDULED TIME 450
  MINUTES WITH ONE STOP, AT NEWCAS
  TLE."
5 PRINT AT 11.0;"YOU ALSO HAV
  E SPEED RESTRICTIONS FOR THREE MA
  JOR STATIONS AND TWOTRACK REPAIR
  S."
6 PRINT AT 15.0;"TYPE ANY KEY
  TO CONTINUE."
9 IF INKEY$="" THEN GOTO 9
10 CLS
11 PRINT "THE REGULATOR IS A T
  HROTTLE- IT CONTROLS THE STEAM F
  LOW."
12 PRINT AT 4.0;"REGULATOR SET
  TINGS 0 TO 8; BRAKE WITH -1 AT a
  11 SLACKS/STATIONS. MUST POWER I
  S REQUIRED TO ACCELERATE FROM SL
  ACKS, ESPECIALLY UP-HILL. LINE S
  PEED LIMIT 100 MPH."
13 PRINT AT 10.0;"FULL BOILER
  PRESSURE IS 220 PSI. IF YOU DRIVE
  TOO HARD, PRESSURE FALLS AND YO
  U WILL RAPIDLY LOSE POWER."
14 PRINT AT 15.0;"NOTE THAT 1
  IN 200 IS A STEEP GRADIENT BY
  RAILWAY STANDARDS."
15 PRINT AT 18.0;"HAVE A GOOD
  TRIP."
16 PRINT AT 20.0;"TYPE ANY KEY
  TO CONTINUE."
18 IF INKEY$="" THEN GOTO 18
19 CLS

```

```

20 PRINT AT 0.5;"4472 flying s
  cotsman"
25 LET M=0
26 LET T=0
30 LET H=0
33 LET V=0
35 LET S=11
40 LET P=220
45 DIM Z(7)
48 RAND 0
50 LET Z(6)=INT (37*RND)*10+10
55 LET Z(7)=INT (37*RND)*10+10
60 RAND 197
71 LET Z(1)=260
72 LET Z(2)=390
73 LET Z(3)=70
74 LET Z(4)=320
75 LET Z(5)=180
80 PRINT AT 4.4;"MILES FROM LO
  NDON";AT 5.11;"ALTITUDE "
85 PRINT AT 7.0;"SCHEDULED TIM
  E";TAB 22;"ACTUAL"
90 PRINT AT 10.2;"boiler press
  ure"
95 PRINT AT 13.2;"regulator po
  sition"
100 PRINT AT 18.0;"(1sP:32*9h)"
105 PRINT AT 19.0;"(1sP:5*9a
  8*9f:5*9i:3*9b:5*9i
  sp)"
110 PRINT AT 20.0;"KINGS PETER-
  YORK NEW- EDIN-"
115 PRINT AT 21.0;"CROSS BOROU
  G H CASTLE BURG"
125 PRINT AT 4.0;M;AT 5.20;INT
  H;" FEET "
130 PRINT AT 8.9;"SPEED ";INT V
  ," M.P.H. "
150 PRINT AT 10.18;P;" P
160 PRINT AT 2.0;"

```

```

200 IF M=400 THEN GOTO 900
205 LET HN=RND*500
210 IF M=390 THEN LET HN=0
215 LET G=52000/(HN-H)
220 LET H=HN
225 PRINT AT 6.0;"NEXT GRADIENT
  1 IN ";INT G;" "
230 FOR N=1 TO 7
235 IF M=Z(N) THEN GOTO 700
240 NEXT N
245 INPUT R
250 IF R>8 OR R<0 AND R<>-1 THE
  1 GOTO 245
255 LET A=(220*P*SQR R/6-8000)/
  (V+30)-25000/G-V*V/150-300/(V+1)
260 LET M=M+10
265 LET Q=V*V+20*A
270 IF Q<0 THEN GOTO 650
275 LET TD=60*(SQR Q-V)/A
280 LET V=SQR Q
285 IF V>105 THEN GOTO 850
290 LET P=P-(R-3)/0.5
292 IF P<150 THEN GOTO 640
295 LET T=T+TD
300 LET S=S+10+400/G
310 IF P>220 THEN LET P=220
320 LET X=INT (0.0775*M-0.45)
330 PRINT AT 18,X;"(9h:1sP)"
355 IF R<0 THEN GOTO 601
360 IF R=0 THEN GOTO 600
370 PRINT AT 13.21;R;" /8 "
375 PRINT AT 7.15;INT S;" MN";T
  AB 29;INT T
380 GOTO 125
600 LET R$="FULL "
601 IF R<0 THEN LET R$="BRAKING
  "
602 IF R=0 THEN LET R$="CLOSED
  "
605 PRINT AT 13.21;R$
610 GOTO 375

```



```

640 PRINT AT 2,0;"brakes leaked
on"
645 PAUSE 200
650 PRINT AT 2,0;"you have stal
led"
655 IF V=0 THEN GOTO 890
660 LET T=T+15+300/V
665 LET P=P+10
670 LET V=0
680 GOTO 300
700 LET M=M+10
710 LET VN=20
715 IF N<=4 THEN LET VN=40
717 IF N<=2 THEN GOTO 755
720 PRINT AT 2,0;"slack ahead "
VN;" M.P.H."
725 INPUT R
730 IF R<>-1 THEN GOTO 850
732 IF N=4 THEN PRINT AT 2,0;"b
erwick I welcome to scotland"
733 PAUSE 100
735 LET TD=1200/(V+VN)
740 LET V=VN
745 LET S=S+115/(V+10)
750 GOTO 290
755 PRINT AT 2,0;"station ahead
"
760 LET VN=0
770 GOTO 725
850 FAST
855 CLS
860 PRINT AT 2,0;"you have cras
hed|excessive speed"
870 GOTO 2005
890 PRINT "YOU ARE STUCK. ANOTH
ER ENGINE IS SENT TO HELP YOU.
"

```

```

896 LET T=T+100
900 LET E=INT (T-3)
901 PAUSE 500
903 CLS
905 GOTO 1000+E*2
1000 PRINT "GOOD RUN MATE"

```

```

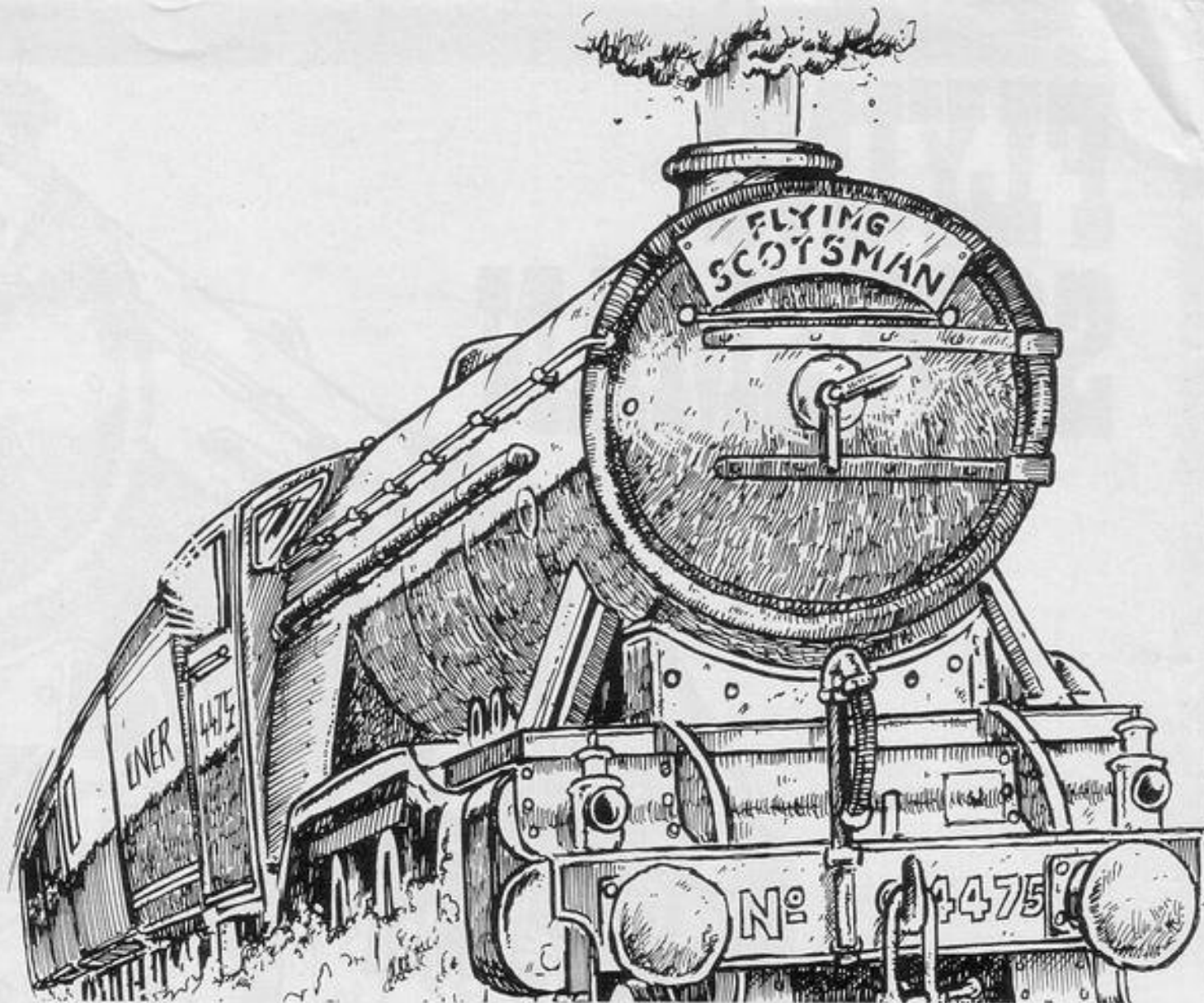
1001 STOP
1020 PRINT "NOT BAD MATE"
1021 STOP
1060 PRINT "POOR RUN I'M AFRAID"
1061 STOP
2000 PRINT " YOU ARE VERY LATE..

```

```

.. ALL THE PASSENGERS COMPLAINE
D."
2005 PRINT AT 4,4;"YOU ARE DEMOT
ED TO CLEANING STEPHENSONS ROCKE
T."
2010 STOP

```



# ERRORS AND MISHAPS



LINE 18 of **Frogger** on page 38 of the July issue should read: 18 PRINT "(i\*)".

The asterisk shown on line 1530 of **Lacemaker** on page 12 should be an inverse asterisk.

On lines 1300 and 1310 of **Astral Foxgloves** on page 13, only the second "b" and the second "c" should be underlined.

In **Grumphers** (page 22) line 400 contains a graphic C, line 830 a graphic A, line 840 a graphic B, and line 850 a graphic D.

The top halves of the hoops in **Hoop-La** on page 35 are made up of graphic A and B, and the bottom halves are made up of graphic C and graphic D.

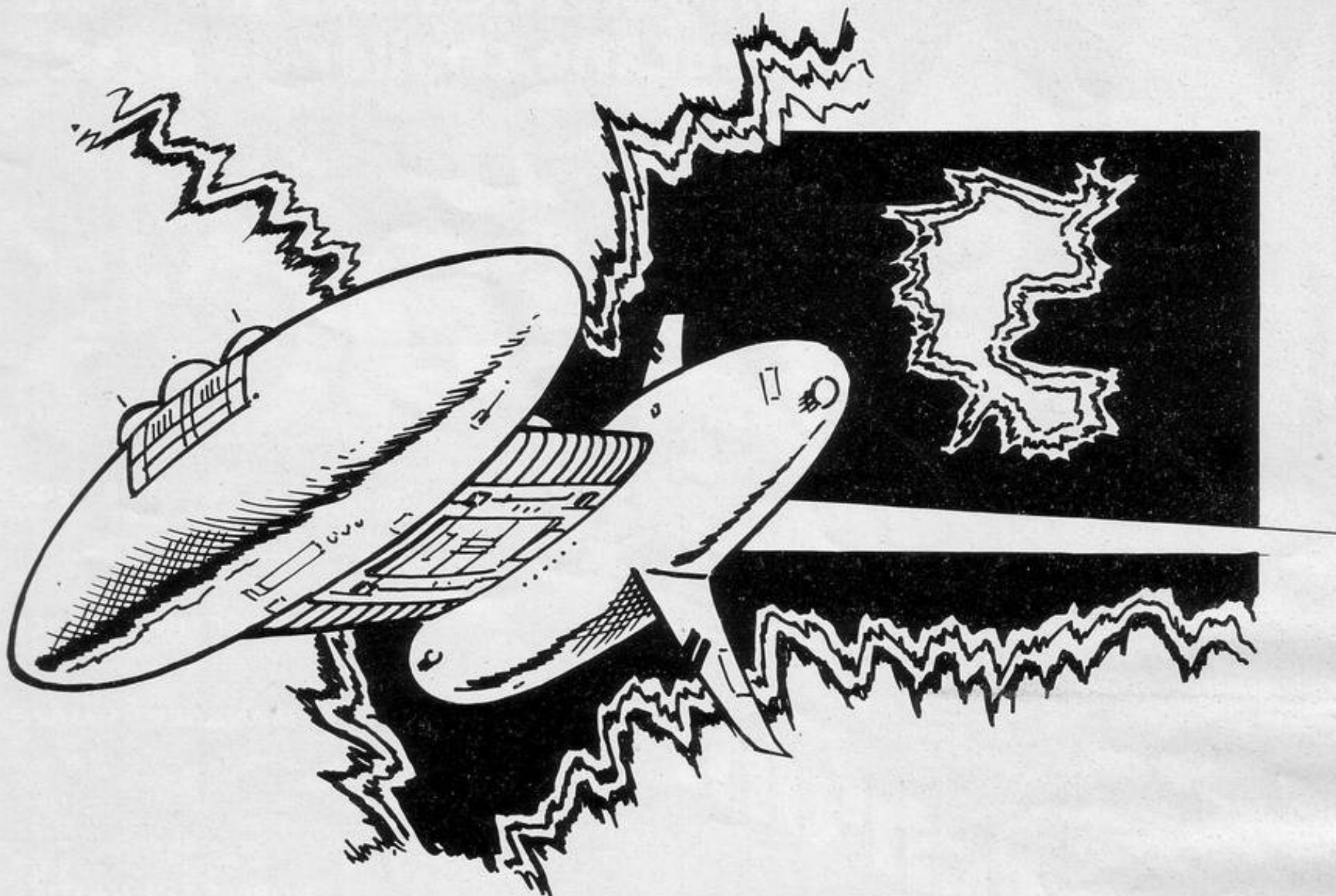
Line 20 of **Light Cycles**, page 37,

contains 32 graphic As and 30 graphic Bs.

The diagonal line which appears on line 1090 of **Personal Finance** on page 47 represents a £ sign.

Line 50 of **Monsters**, page 49, contains a graphic F and a graphic I, line 2110 contains 32 graphic As, line 2140 a graphic B, and line 3000 a graphic C.





## »»» F O R C E F I E L D «««

**Y**OUR CRAFT appears on the left-hand side of the screen and must travel through the gaps in the forcefield to reach the right-hand

side. Skilful flying on your first flights may succeed in destroying the edges of the forcefields nearest to the gaps and thus make subsequent flights easier.

Move down with A and up with L.

**Forcefield** was written for the 16K or 48K Spectrum by G Woolnough of Coventry, West Midlands.

```

100 GO SUB 9000
150 PAPER 0: BORDER 0: CLS
175 LET b=0
200 INK 7: PRINT AT 0,0:"Flight
  : Score: Best:"
205 PRINT AT 1,0: INK 6:"█"; IN
  K 5:"aaaaaaaaaaaaaaaaaaaaaaaaa
  aaaa"; INK 6:"█"
210 FOR n=2 TO 20 STEP 2
220 PRINT AT n,0:"█"AT n+1,0:"
  b"
230 PRINT AT 21,0: INK 6:"█"; I
  NK 5:"aaaaaaaaaaaaaaaaaaaaaaaaa
  aaaa"; INK 6:"█"
240 NEXT n
255 INK 2: FOR n=2 TO 20: PRINT
  AT n,31:"e": NEXT n
260 INK 7: FOR j=7 TO 27 STEP 5
  : FOR n=2 TO 20: PRINT AT n,j:"d
  ": NEXT n
270 FOR m=1 TO 3: LET k=INT (RN
  D*10)+2: PRINT AT k,j: INK 0:"█"
  : NEXT m: NEXT j
275 LET sc=1000: LET f1=0
280 REM SHIP
285 LET q=INT (RND*9)+1
290 LET q=q*2: LET q=q+1
310 LET w=1
311 PRINT AT 0,7:f1: PRINT AT 0
  ,16:sc:" "
312 IF f1=10 THEN GO TO 420
315 LET f1=f1+1: PRINT AT 0,7:f
  1
319 PAUSE 25
320 INK 6: PRINT AT q,w:"c"
325 FOR k=1 TO 8: NEXT k: BEEP

```

```

.01,20
330 PRINT AT q,w:" "
350 IF ATTR (q,w+1)=2 THEN GO
  TO 1000
360 IF ATTR (q,w+1)=5 THEN GO
  TO 2000
370 IF ATTR (q,w+1)=7 THEN GO
  TO 3000
375 LET q=q+(INKEY#="a")-(INKEY
  #="l")
395 LET w=w+1
400 GO TO 320
420 FOR N=2 TO 20: PRINT AT N,4
  , " "
  : PA
  USE 7: NEXT N
421 IF sc>b THEN LET b=sc
422 PRINT AT 0,20:b
425 PRINT AT 5,3:"WOULD YOU LIK
  E ANOTHER GO?" : BEEP .01,4: BEEP
  .02,5: PRINT AT 7,15:"(Y/N)": F
  OR N=0 TO 4: BEEP .01,N: NEXT N
430 IF INKEY#="" THEN GO TO 43
  0
440 IF INKEY#="y" THEN PRINT A
  T 5,3:"
  "AT 7,15:" "AT 0,7:"
  " : GO TO 260
450 IF INKEY#<>"y" THEN PRINT
  AT 10,10:"SO BE IT.FAREWELL." : S
  TOP
1010 FOR n=1 TO 10
1020 BEEP .01,INT (RND*30)
1030 NEXT n
1040 LET sc=sc+200
1999 GO TO 280
2000 PRINT AT q,w:" "

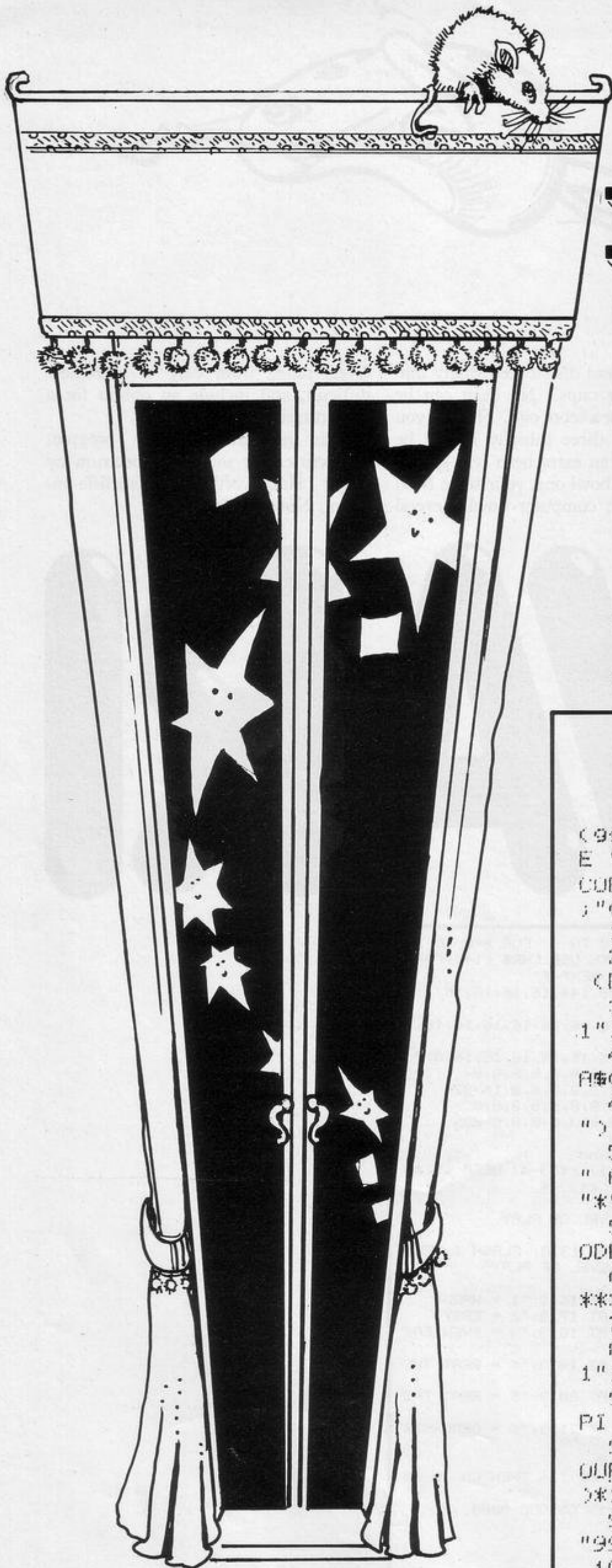
```

```

2010 FOR n=16 TO 8 STEP -1
2020 BEEP .01,n
2040 LET sc=sc-100
2050 PRINT AT q,w: INK 5:"a"
2999 GO TO 280
3010 FOR n=15 TO 10 STEP -1
3020 BEEP .01,n: BEEP .01,n-3
3030 NEXT n
3040 LET sc=sc-100
3999 GO TO 280
8999 STOP
9000 FOR k=1 TO 5: FOR n=0 TO 7:
  READ a: POKE USR (CHR# (143+k))
  +n,a: NEXT n: NEXT k
9010 DATA BIN 11111111,BIN 00000
  000,BIN 11111111,BIN 10101010,BI
  N 01010101,BIN 11111111,BIN 0000
  0000,BIN 11111111
9020 DATA BIN 10100000,BIN 10101
  000,BIN 10100100,BIN 10100010,BI
  N 10100001,BIN 10100010,BIN 1010
  0100,BIN 10101000
9030 DATA BIN 11111100,BIN 00111
  000,BIN 00111100,BIN 11111111,BI
  N 00111100,BIN 00111000,BIN 1111
  1100,BIN 00000000
9040 DATA BIN 11100001,BIN 11010
  001,BIN 11001001,BIN 11000111,BI
  N 11000111,BIN 11001001,BIN 1101
  0001,BIN 11100001
9050 DATA BIN 00000001,BIN 00100
  110,BIN 10111100,BIN 01011100,BI
  N 01011100,BIN 10111100,BIN 0010
  0010,BIN 00000001
9300 RETURN
9999 SAVE "FORCE" LINE 1

```





# STAR HOOTER

A NARROW WINDOW appears in the middle of the screen, through which can be seen a moving line of grey squares. Whenever a grey square appears between the markers in the middle of the window press any key to replace it with a star. When each of the 32 grey squares in the loop has been replaced by a star, and any squares which have appeared in the course of the game have been replaced, your skill percentage will be shown.

That will be lower if you have not pressed a key when a grey square has been between the markers, or if you have pressed a key when a star was between the markers.

**Star Shooter** was written for the 1K ZX-81 by Adam Freed of Bognor Regis, Sussex.

```

2 CLS
3 LET T=SGN PI
4 LET S=T
5 PRINT AT CODE "(9d)",CODE "
(9s)";"(5*isp:i+5*isp)";TAB COD
E "(9s)";"(isp)";AT CODE "(9s)",
CODE "=";"(isp)";TAB CODE "(9s)"
;"(5*isp:i+5*isp)"
10 LET A$="(32*9h)"
20 IF RND<.125 THEN LET A$(INT
(RND*CODE "4")+SGN PI)="(9a)"
30 PRINT AT CODE "(9s)",VAL "1
1";A$(CODE "E" TO CODE "=")
40 LET A$=A$(CODE "(92)" TO )+
A$(CODE "(91)")
45 LET T=T+(A$(CODE "?")="(9a)
")
50 LET S=S+(A$(CODE "?")="(9a)
" AND INKEY$<>"")-(A$(CODE "?")=
"*" AND INKEY$<>"")
55 IF INKEY$<>" THEN LET A$(C
ODE "?")="*"
60 IF A$="*****" THEN GOTO VAL "80"
70 GOTO CODE "="
80 PRINT AT CODE "(9s)",VAL "1
1";"GAMEOVER"
90 IF S<NOT PI THEN LET S=NOT
PI
95 PRINT AT CODE "$",NOT PI;"Y
OUR SKILL PERCENTAGE=";INT ((S/T
)*100)
99 IF INKEY$="" THEN GOTO VAL
"99"
100 RUN

```



# fantasy

## SOFTWARE

## DOOMSDAY CASTLE

is an arcade style game  
with the feel  
of a real adventure

Doomsday Castle consists of a labyrinth of 76 complexly inter-connected Halls and Passages where you will meet a whole host of adversaries serving the infinitely evil Scarthax, the Garthrogs, the Orphacs, the phenomenally nasty Googly Bird and the Urks which manifest themselves in over fifty unbelievably weird and wonderful guises.

Scarthax has scoured the Universe to bring together the six ancient stones of life force. United in Doomsday Castle they are being used to wield an irresistible power over the cosmos, emanating waves of corruption through every galaxy.

To save the Universe, you must battle your way through the Castle to find and collect the six stones and use their force against Scarthax to destroy Doomsday Castle, hopefully escaping yourself before the final cataclysmic explosion. The task is not easy (saving the Universe never is!) and it will take you many games to unfold the structure of Doomsday Castle and discover the locations of the ancient stones. The addictive arcade style action will keep you coming back to play but the overall challenge should still keep you occupied for months.



You take on the role of our super hero ZIGGY shown here above in his exploratory capsule in combat with an Urk disguised as a pangalactic gargleblaster (!!) This is a true representation of the on-screen graphics.

**FANTASY SOFTWARE**  
is available from  
**W.H.SMITHS, JOHN MENZIES,  
LASKYS, GREENS, RUMBELOWS,  
SPECTRUM GROUP,  
COMPUTERS FOR ALL and all other  
good software retailers.**

**For 48K  
Spectrum**

# DOOMSDAY CASTLE

is available at £6.50 from

FANTASY SOFTWARE, FALCONBERG LODGE, 27A ST GEORGES ROAD, CHELTENHAM, GLOS GL50 3DT  
despatched by return first class post together with free membership and current newsletter of the Fantasy Micro Club.  
Trade Enquiries welcome – telephone 0242-583661.





```

10 LET X=CODE "(95)"
20 LET Y=CODE "2"
30 DIM C(I+J,J)
40 LET S=0
50 LET X=X+(INKEY$="6" OR X=0)
-(INKEY$="7" OR X=CODE "(95)")
60 LET Y=Y+(INKEY$="8" OR Y=0)
-(INKEY$="5" OR Y=CODE "3")
70 LET R=INT (RND*J)+I
80 LET C(R,I)=C(R,I)+(X>C(R,I)
)-(X<C(R,I))
90 LET C(R,J)=C(R,J)+(Y>C(R,J)
)-(Y<C(R,J))
100 LET S=S+I
110 PRINT AT X,Y;"*";AT C(R,I),
C(R,J);"(i*)";AT 0,0)S
120 IF X>C(R,I) OR Y>C(R,J) T
HEN GOTO CODE "M"
130 PRINT AT X,Y;"GOTCHA"

```

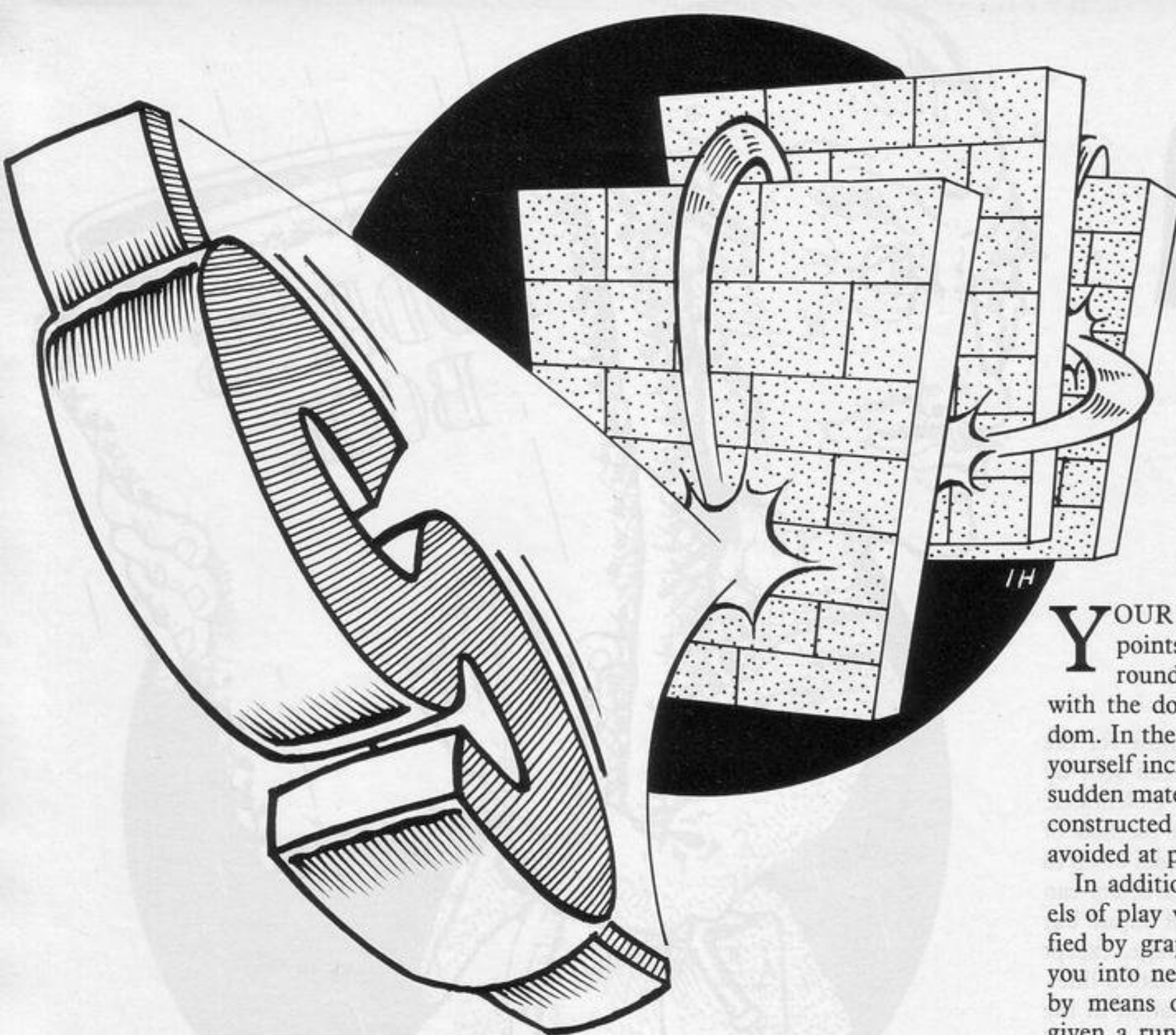
**G**OTCHA is an exciting game for the 1K ZX-81 which can be played again and again without becoming boring. It requires some skill and forethought.

It was written by Paul Sutton, a law student of Cardiff, South Glamorgan. He owns a ZX-81 with 16K RAM pack, which he uses normally to help him in fantasy games, such as dungeons and dragons.

You—an asterisk—must avoid the two intelligent ghosts—inverse asterisks—for as long as possible. As each of you leaves a trail, it can become impossible to spot the ghosts for long periods.

Remember that you can cross your own trail or that of the ghosts, that you can move only in the upper half of the screen, and that you can move faster than the ghosts. Your movement is controlled by the usual cursor keys. Start by entering GOTO 1.





**Y**OUR TASK is to collect as many points as possible by moving round the playing area colliding with the dollar signs appearing at random. In the course of play you will find yourself increasingly constrained by the sudden materialisation of deadly walls—constructed of graphic H. They must be avoided at peril of your life.

In addition, gateways on to new levels of play will appear. They are signified by graphic Ts and will transport you into new playing areas. You move by means of the cursor keys and are given a running score of your achievements. Full instructions are given with the listing.

**16K Evasion** was submitted by Peter Hawkin of Leeds. In our listing, lower-case lettering indicates graphics instructions; IS signifies Inverse Space. (16K ZX-81).

# EVASION

```

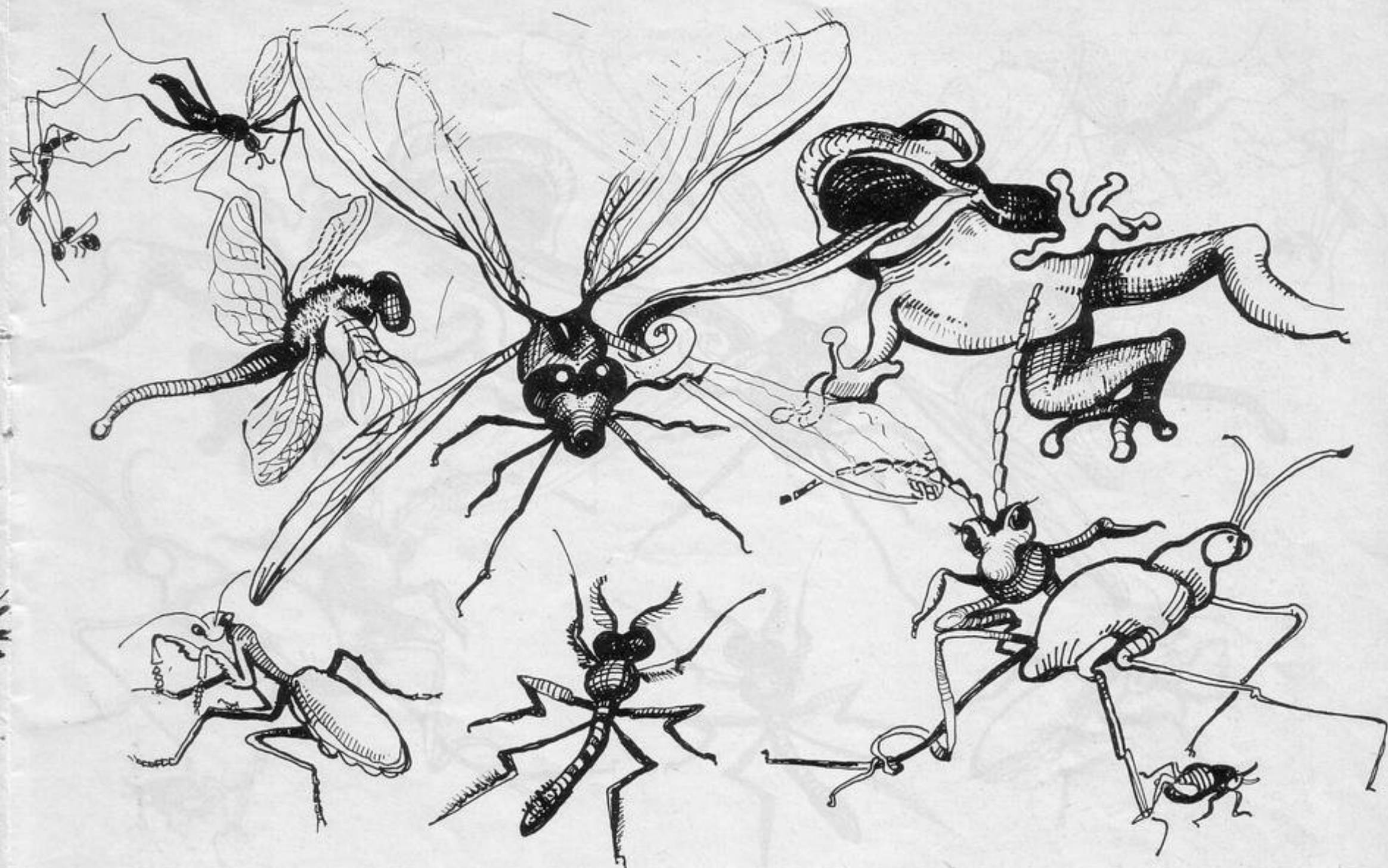
5 LET H=0
10 PRINT
   SURROUND-81

   MOVE YOUR MAN(X) AROUND
   THE SCREEN USING THE
   CURSOR KEYS(5,6,7,8)AND
   EAT THE POINT-PODS(#).
   DO NOT CRASH INTO THE
   DEADLY WALLS(graphic H).EAT
   THE"
20 PRINT
   "   ESCAPE   PILLS(graphic T)
   TO GET     ONTO A HARDER LEV
   EL.

   INPUT DIFFICULTY
   LEVEL      (1-4)"
25 LET A$=INKEY$
30 IF A$="" THEN GOTO 25
35 IF A$<>"1" AND A$<>"2" AND
A$<>"3" AND A$<>"4" THEN GOTO 25
40 LET L=VAL A$/8
45 LET S=0
50 CLS
60 LET A=1+PEEK 16396+PEEK 163
97*256
65 PRINT "(2*IS)SURROUND-81(7*
IS)SCORE=(6,IS)"
70 PRINT "(32*IS)"
80 FOR F=1 TO 19
90 PRINT "(IS)";TAB 31;"(IS)"
100 NEXT F
110 PRINT "(32*IS)"
120 LET X=345
123 LET Y=336
130 IF INKEY$="5" AND PEEK (A+X
-1)<>128 THEN LET X=X-1
140 IF INKEY$="6" AND PEEK (A+X
+33)<>128 THEN LET X=X+33
150 IF INKEY$="7" AND PEEK (A+X
-33)<>128 THEN LET X=X-33
160 IF INKEY$="8" AND PEEK (A+X
+1)<>128 THEN LET X=X+1
165 IF X=Y THEN GOTO 125
170 IF PEEK (X+A)=136 THEN GOTO
360
175 IF PEEK (X+A)=13 THEN LET S
=S+100
180 IF PEEK (X+A)=6 THEN GOTO 3
00
185 POKE (X+A),61
190 POKE (Y+A),0
200 LET Y=X
210 IF (RND(L) AND (PEEK (A+X+2
)<>128) AND (PEEK (A+X+1)<>128)
THEN POKE (A+X+INT (RND*2)+1),13
6
220 IF (RND(L) AND (PEEK (A+X-6
)<>128) AND (PEEK (A+X-33)<>128
) THEN POKE (A+X-((INT (RND*2)+1
)*33)),136
230 IF (RND(L) AND (PEEK (A+X+6
)<>128) AND (PEEK (A+X+33)<>128
) THEN POKE (A+X+((INT (RND*2)+1
)*33)),136
240 IF (RND(L) AND (PEEK (A+X-2
)<>128) AND (PEEK (A+X-1)<>128)
THEN POKE (A+X+INT (RND*2)-2),13
6
250 IF RND<.1 THEN PRINT AT INT
(RND*19)+2,INT (RND*30)+1;"#"
260 IF RND<.03 THEN PRINT AT IN
T (RND*19)+2,INT (RND*30)+1;"(gr
aphic T)"
270 LET S=S+10
280 PRINT AT 0,26;S
290 GOTO 125
300 LET S=S+300
305 POKE (A+Y),0
310 FOR F=1 TO 25
313 POKE X+A,61
315 POKE X+A,6
317 POKE A+X,134
320 NEXT F
325 CLS
330 PRINT
   WELL DONE. YOU HAVE COMPLETED
   ROUND ONE AND HAVE BEEN AWARDED
   300 BONUS POINTS FOR DOING SO.
   PRESS ANY KEY TO GET ONTO A
   HARDER LEVEL."
335 LET L=L+.125
340 IF INKEY$="" THEN GOTO 340
350 GOTO 50
360 POKE A+Y,0
365 FOR F=1 TO 25
370 POKE X+A,61
375 POKE A+X,136
380 POKE A+X,0
390 NEXT F
400 CLS
410 PRINT "YOU CRASHED INTO A W
ALL. YOUR   FINAL SCORE WAS ",S,
   ". "
420 IF S>H THEN LET H=S
425 PRINT
430 PRINT "THE HIGH SCORE IS ",
H, ". "
435 PRINT
440 PRINT "PRESS ANY KEY FOR AN
OTHER GAME."
450 IF INKEY$="" THEN GOTO 450
460 CLS
470 GOTO 10
9000 SAVE "SURR"
9010 RUN

```





**Y**OU HAVE one minute to catch as many types of insects as possible with the sticky tongue of your frog. The controls are 5 — skip left; 8 — skip right; 6 — jump left; 7 — jump right; 0 releases the tongue. Press R to return to the lily pad for a new game.

**Bugfever** was written by Simon Cox of Dunstable, Beds.

# BUG FEVER

```
1 DATA 14,17,17,35,37,42,116,
63,96,152,8,8,16,32,132,248,96,1
58,65,48,12,7,5,9,3,4,100,181,23
4,100,4,2,24,32,64,170,85,64,32,
24,0,0,192,62,61,255,62,32,0,127
,1,0,1,127,0,0,3,14,255,255,255,
14,3,0
```

```
2 DATA 240,0,128,128,128,0,24
0,0,0,0,130,130,130,186,186,
254,124,124,56,56,56,56,100,60,6
0,68,68,68,68,0,0,34,34,34,34,34
,34,54,28,28,28,28,62,62,127,93,
93,65,65,65,65,0,0,0,112,216,124
,126,255,127,63,255
```

```
3 DATA 14,27,62,126,255,254,2
52,255,248,0,128,255,128,0,248,0
,0,0,254,128,0,128,254,0,0,192,1
12,255,255,255,112,192,0,15,0,1,
4,1,0,15
```

```
4 RESTORE : FOR q=0 TO 167 ST
EP 8: FOR r=0 TO 7: READ a: POKE
USR "(9a)" + q + r, a: NEXT r: NEXT
q
```

```
10 DATA BIN 1010010, BIN 010101
01, BIN 01010101, BIN 00101011, BIN
00101011, BIN 10010111, BIN 10001
111, BIN 01111111, BIN 01100101, BI
N 01101010, BIN 10101010, BIN 1101
0100, BIN 11010100, BIN 11101001, B
IN 1110001, 255
```

```
15 DATA BIN 1010010, BIN 010101
01, BIN 01010101, BIN 00101011, BIN
00101011, BIN 10010111, BIN 10001
111, BIN 01111111, BIN 01100101, BI
N 01101010, BIN 10101010, BIN 1101
```

```
0100, BIN 11010100, BIN 11101001, B
IN 1110001, 255
```

```
20 DATA 14,17,17,35,37,42,116,
63,96,152,8,8,16,32,132,248
```

```
900 BORDER 5: PAPER 8: BRIGHT 1
: CLS : FOR n=0 TO 10: PRINT AT
n,0: PAPER 5,, : NEXT n: FOR n=11
TO 21: PRINT AT n,0: PAPER 1,, :
NEXT n
```

```
901 INK 7: FOR r=0 TO 80 STEP 1
6: FOR q=0+RND*4 TO 255 STEP 16:
PLOT q,r: DRAW 2,2: DRAW 2,-1:
NEXT q: NEXT r
```

```
911 LET time=60: LET score=0
912 INK 1: PAPER 4: PRINT AT 17
,3: "(15P:193:19*5P:193)"
913 PRINT AT 18,3: "
```

```
914 PRINT AT 19,3: "(15P:93:21*5
P:93)"
```

```
915 INK 0: PAPER 4: PLOT 35,26:
DRAW 170,0
```

```
916 FOR n=45 TO 190 STEP 8: PLO
T n,26: DRAW 8,8: DRAW -8,-8: DR
AW 8,-8: NEXT n
```

```
917 FOR n=0 TO 255: PLOT INK 4
,n,8: DRAW INK 4,0,1NT (RND*8):
NEXT n
```

```
918 RESTORE 10: FOR n=0 TO 15:
READ a: POKE USR "(9a)" + n, a: NEX
T n
```

```
919 PRINT AT 19,1: INK 3: PAPER
1: "(9a:9b)" AT 16,3: INK 6: PAP
ER 1: "(9a:9b)" AT 16,26: INK 7:
PAPER 1: "(9a:9b)" AT 19,28: INK
```

```
6: PAPER 1: "(9a:9b)"
```

```
920 RESTORE 20: FOR n=0 TO 15:
READ a: POKE USR "(9a)" + n, a: NEX
T n
```

```
930 FOR q=1 TO 9 STEP -.1: PLOT
INK 6,224,175: DRAW INK 6,31,
-q*4,q: NEXT q
```

```
940 OVER 0: FOR r=40 TO 200: FO
R q=1 TO 4: PLOT INK 3,r+q,16:
DRAW INK 3,0,12: NEXT q: LET r=
r+INT (10+RND*20): NEXT r
```

```
1010 PAPER 8: INK 0: REM frog
1015 PRINT AT 21,0: PAPER 4,,
1016 PRINT AT 21,11: INK 7: "BUGF
EVER"
```

```
1020 LET x=16: LET y=13
1021 PRINT AT x,y: INK 7: "(9a)"
1025 LET z=10
```

```
1026 GO TO 5360
```

```
5020 FOR n=x-3 TO x-z+(3 AND y)=
25 AND z>3: STEP -1: INK 0+(7 AN
D n>10): BRIGHT 1: PRINT AT n,y:
"9j " AT n+1,y: "9k " AT n+2,y: "l
" AT n+3,y: " " GO SUB 6050
```

```
5030 NEXT n
```

```
5035 PRINT AT n+1,y: " " AT n+2,y
: " " AT n+3,y: " "
```

```
5040 FOR p=y TO y+4-(3 AND y)=25
)
```

```
5050 PRINT AT n,p: " (99:9h:91)"
```

```
5051 IF INKEY#="0" THEN BEEP .0
1,0: PRINT AT n,p+3: INK 0: "(9r)"
```

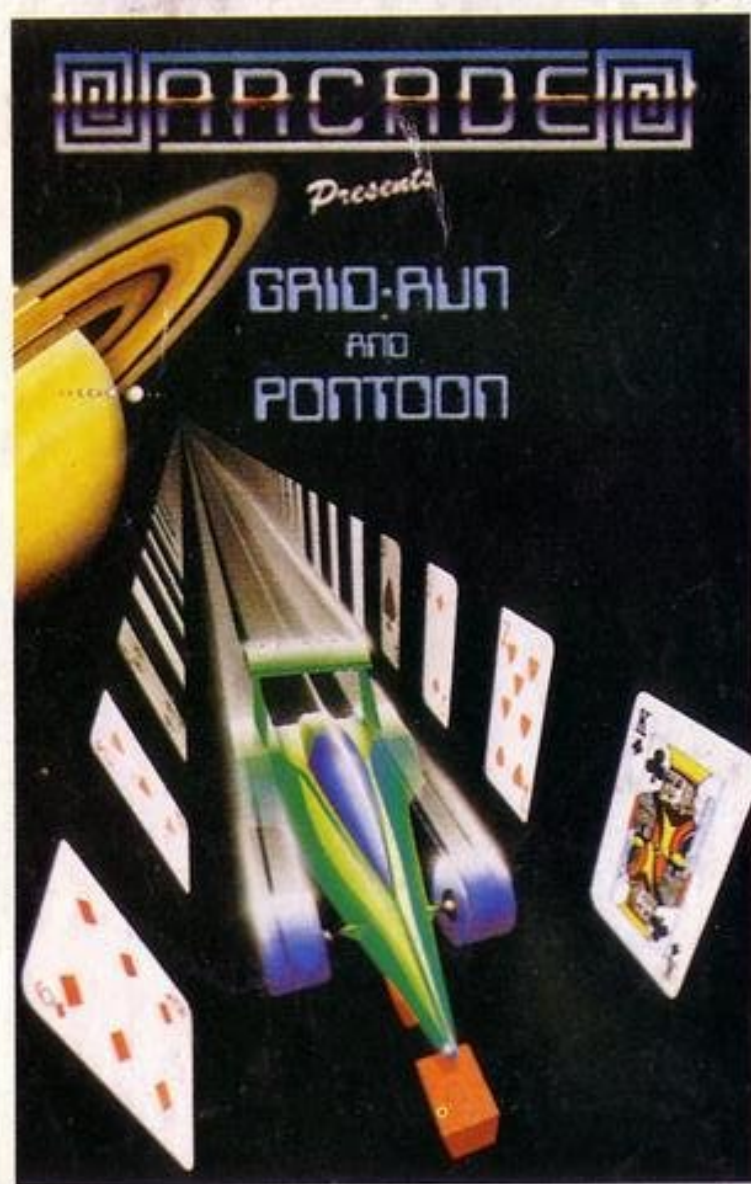
```
5052 IF (SCREEN# (n,p+4)<>" ") A
ND INKEY#="0" THEN PRINT AT n,p
```



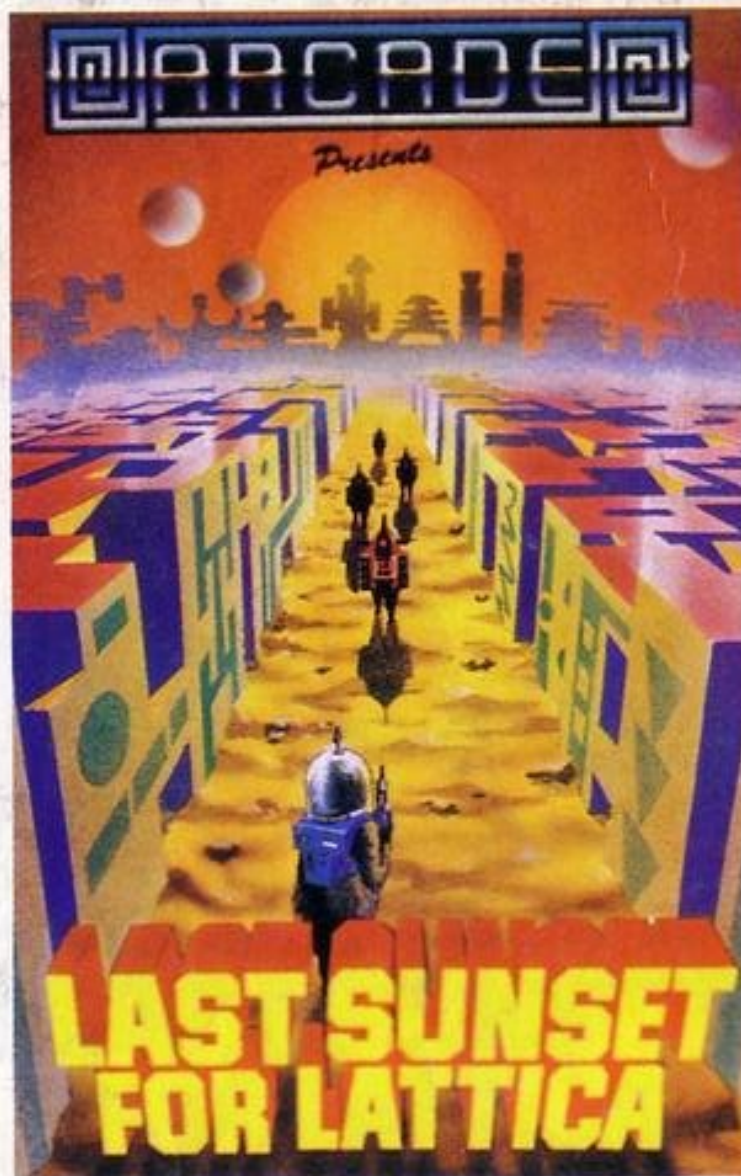
A black and white line drawing of various insects, including a large central fly, a bee, a grasshopper, a cricket, and several beetles, arranged in a circular pattern. The drawing is a detailed illustration of various insects, including a large central fly with prominent wings, a bee, a grasshopper, a cricket, and several beetles, arranged in a circular pattern. The style is a detailed line drawing, likely a woodcut or engraving, showing the intricate details of the insects' anatomy. The central fly is the largest and most prominent, with its wings spread wide. To its left is a bee, and to its right is a grasshopper. Below the central fly is a cricket, and to the left of the cricket is a beetle. To the right of the cricket is another beetle, and below that is a small beetle. The insects are arranged in a circular pattern, with the central fly at the top and the small beetle at the bottom. The drawing is a detailed illustration of various insects, including a large central fly, a bee, a grasshopper, a cricket, and several beetles, arranged in a circular pattern. The style is a detailed line drawing, likely a woodcut or engraving, showing the intricate details of the insects' anatomy. The central fly is the largest and most prominent, with its wings spread wide. To its left is a bee, and to its right is a grasshopper. Below the central fly is a cricket, and to the left of the cricket is a beetle. To the right of the cricket is another beetle, and below that is a small beetle. The insects are arranged in a circular pattern, with the central fly at the top and the small beetle at the bottom. The drawing is a detailed illustration of various insects, including a large central fly, a bee, a grasshopper, a cricket, and several beetles, arranged in a circular pattern. The style is a detailed line drawing, likely a woodcut or engraving, showing the intricate details of the insects' anatomy. The central fly is the largest and most prominent, with its wings spread wide. To its left is a bee, and to its right is a grasshopper. Below the central fly is a cricket, and to the left of the cricket is a beetle. To the right of the cricket is another beetle, and below that is a small beetle. The insects are arranged in a circular pattern, with the central fly at the top and the small beetle at the bottom.



# THE ARCADE COLLECTION



**GRID RUN** is a high resolution, fast machine code game using the spectrums sound and colour to the full. Set in a maze you must avoid oncoming android cars bent on your destruction. Bonus car every 10,000 points "Famous Five" hall of fame, increasing speed and difficulty. There is even a hold button to get your breath back. **PONTOON** included on side B absolutely free. Pontoon has full graphical representations of all the cards including King, Queen, Jack, "Intelligent" play of aces, and full analysis of results at end of each game. REF. GRID.



**LAST SUNSET FOR LATTICA** (Original) is a true graphical adventure game in real time. Your aim is to defuse a bomb hidden somewhere in a highly complicated maze avoiding many well armed androids along the way. Extra lives are there for the taking, so are the keys to take you to the next level and all the while time is running out for the little Planet of Lattica. REF. SUN.



**THE DETECTIVE** (Original) You thought it was just another "Take the secrets from a Safe and Run" job but the mob thought differently. They will try everything to stop you this time, if madmen, lasers, bombs, dynamite, daggers, barrels, blister bombs, crates, helicopters, jets and fourteen other levels do not get you, you might just make it. Opening the safe has its pitfalls too. Fast moving, m/c game with excellent graphics and sound. A very addictive game. REF. DET.



**RAIDER OF THE CURSED MINE** (Original) Greed drove you down into the old diamond mine, sheer determination and luck is the only way out again. Lifts help you, so do lamps, and diamonds can be worth a fortune but beware of the evils that lurk deep in the mine. Trolls who throw boulders at you, spiders who eat you, ghosts who show no mercy and bats who steal things, add to this a time bonus and you have an exciting Arcade quality game. Reach level 32 and escape to the big outside world. REF. RAID.

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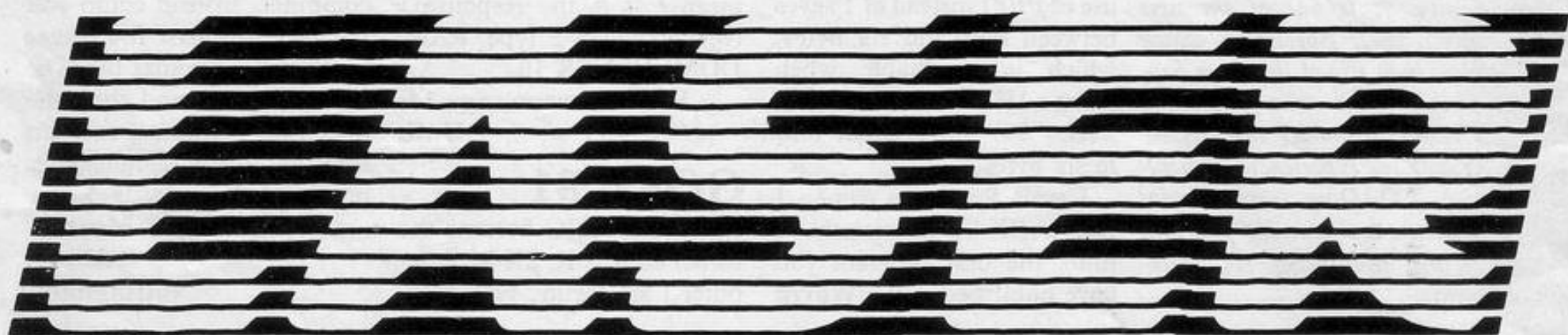
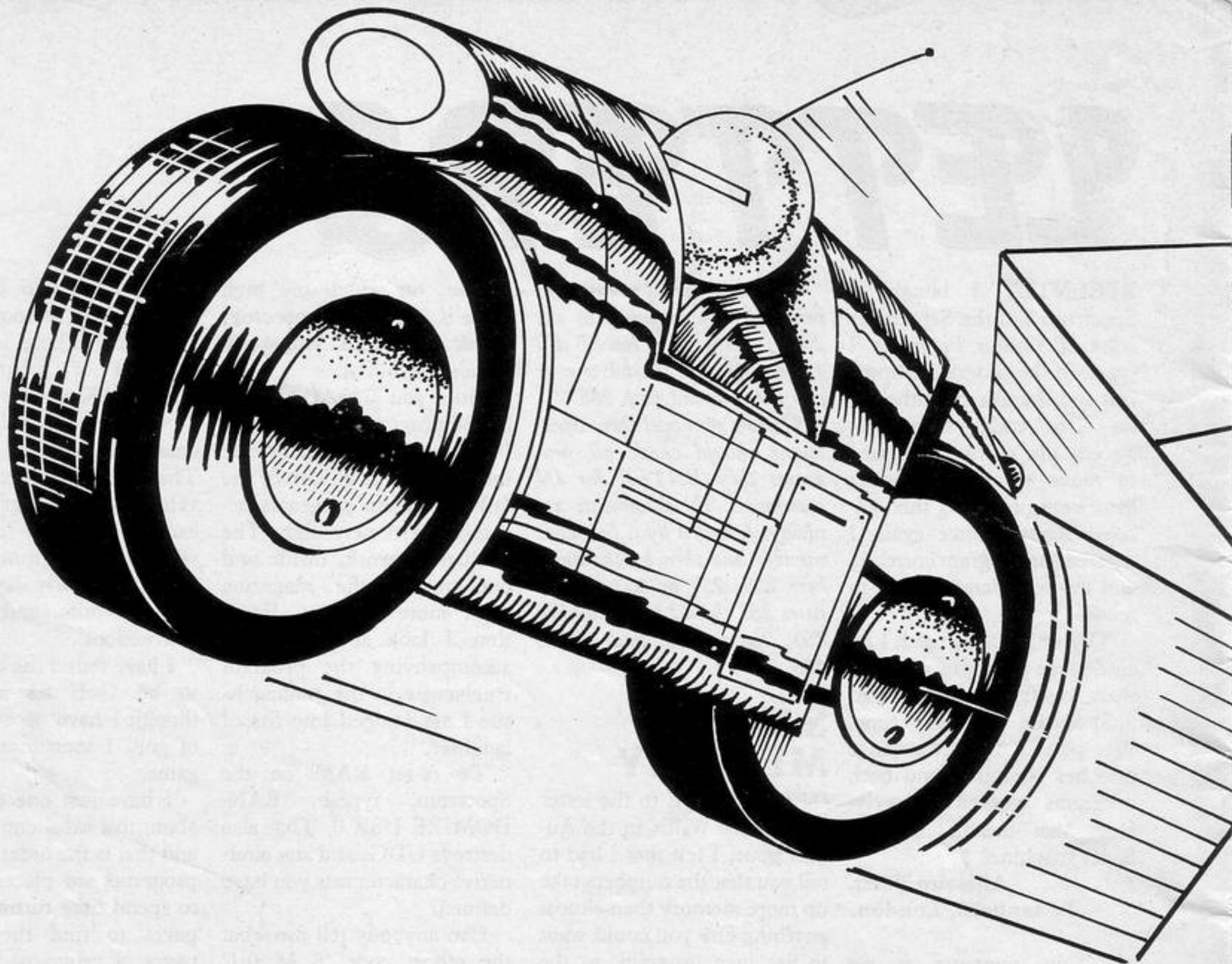
Signature

Name: Mr/Mrs/Miss

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SP1





## Part 1

```

10 RESTORE : CLEAR 31999: LET
x=0
20 FOR n=32000 TO 32609: READ
a: LET x=x+a: POKE n,a: NEXT n:
IF x<>61860 THEN PRINT AT 10,10:
FLASH 1: "ERROR IN DATA": STOP
30 DATA 33,8,92,54,56,33,100,1
27,54,7,35,54,207,35,54,255,35,5
4,56,35,54,0,35,54,1,35,54,0,35,
54,20,35,54,0,62,2,205,1,22,1,7,
7,205,229,34,17,1,1,1,0,153,205,
186,36,1,241,0,205,186,36,17,255
,255,1,0,153,205,186,36,1,241,0,
205,186,36
40 DATA 42,118,92,84,93,41,41,
25,41,41,41,25,34,118,92,124,254
,8,56,236,254,152,48,232,71,14,1
2
50 DATA 197,6,9,197,62,189,144
,50,123,92,6,20,33,109,127,197,7
0,35,78,35,229,205,217,13,62,145
,215,225,193,16,240,6,100,197,42
,106,127,43,43,43,34,106,127,17,
1,0,205,181,3,193,16,237,193,16,
204
60 DATA 209,6,4,197,33,0,0,6,7
,197,120,50,143,92,66,75,213,229
,205,229,34,225,6,100,197,35,229
,17,1,0,205,181,3,225,193,16,243

```

```

,209,193,16,224,193,16,215,213,1
93
70 DATA 58,104,127,120,71,58,1
05,127,129,79,237,67,106,127,197
,205,22,126,193,197,205,229,34,1
93,255,58,8,92,33,104,127,254,53
,32,7,54,0,35,54,255,24,214,254,
56,32,7,54,0,35,54,1,24,203
80 DATA 254,54,32,7,54,255,35,
54,0,24,192,254,55,32,5,54,1,35,
54,0,24,181
90 DATA 205,170,34,71,126,4,7,
16,253,203,71,40,22,193,193,33,0
,0,126,211,254,70,16,254,35,124,
254,23,32,244,33,88,39,217,201
100 DATA 58,0,92,33,103,127,70,
184,40,5,119,43,54,255,35,43,62,
88,6,19,211,254,47,60,211,254,19
7,70,16,254,193,16,243,53,62,16,
215,62,5,215,1,5,24,205,217,13,3
3,100,127,30,32,205,40,26,237,91
,100,127,99,106,43,124,254,255,3
2,8,193,193,1,0,0,217,24,162,92,
85,237,83,100,127,62,16,215,62,7
,215
110 DATA 33,108,127,52,126,254,
19,56,2,54,255,35,135,133,111,12
6,254,255,202,70,127,229,229,70,
35,78,205,217,13,62,32,215,33,10

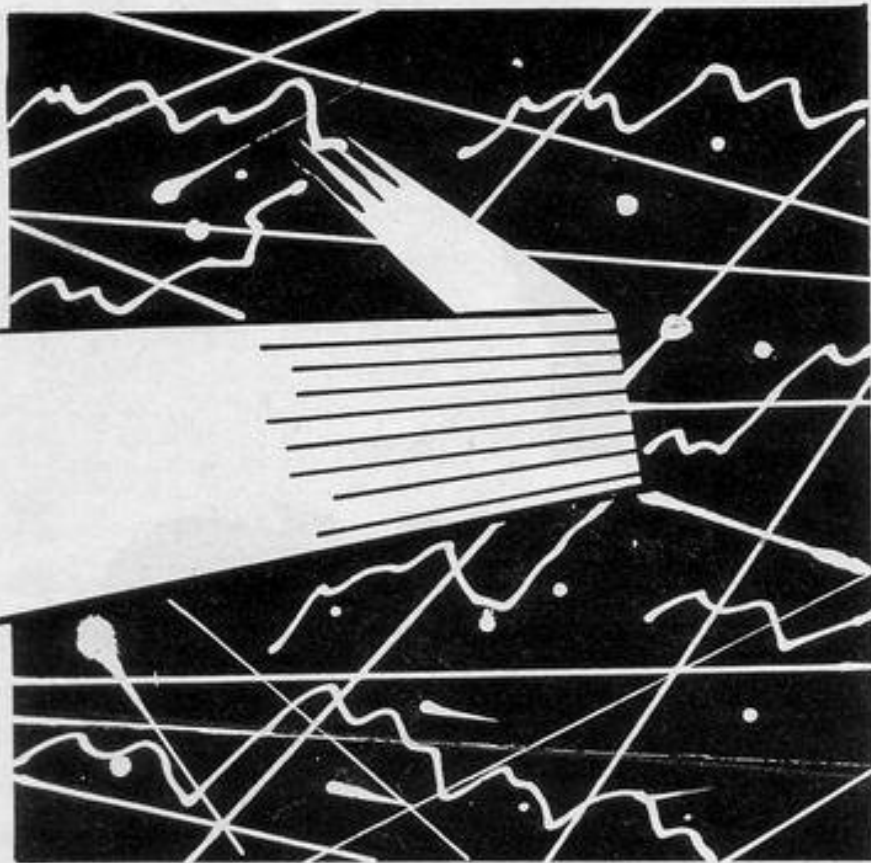
```

```

6,127,126,35,70,22,255,20,214,8,
48,251,62,33,146,79,62,175,144,2
2,255,20,214,8,48,251,62,24,146,
71,225,197,126,184,48,3,60,24,1,
61,119
120 DATA 71,35,126,185,48,3,60,
24,1,61,119,79,197,205,217,13,19
3,225,17,143,92,124,184,32,14,12
5,185,32,10,225,62,6,18,62,147,2
15,195,35,126,33,33,91,17,32,0,1
51,237,82,16,251,65,43,16,253,62
,2,190,40,12,225,33,143,92,54,7,
62,145,215,54,2,201
130 DATA 225,6,9,197,62,187,128
,50,123,92,229,70,35,78,205,217,
13,62,144,215,33,0,0,126,211,254
,35,124,254,9,32,247,225,193,16,
223,54,255,33,143,92,54,2,33,109
,127,126,254,255,192,35,35,128,2
54,149,32,245,225,225,1,1,0,217,
195,52,126
140 PRINT AT 10,8: "NO ERRORS IN
DATA"
150 PRINT AT 12,3: "NOW SAVING D
ATA TO CASSETTE"
160 SAVE "STRON2"CODE 32000,620
170 STOP
9999 SAVE "STRON DATA" LINE 0: B
EEP 1,1

```



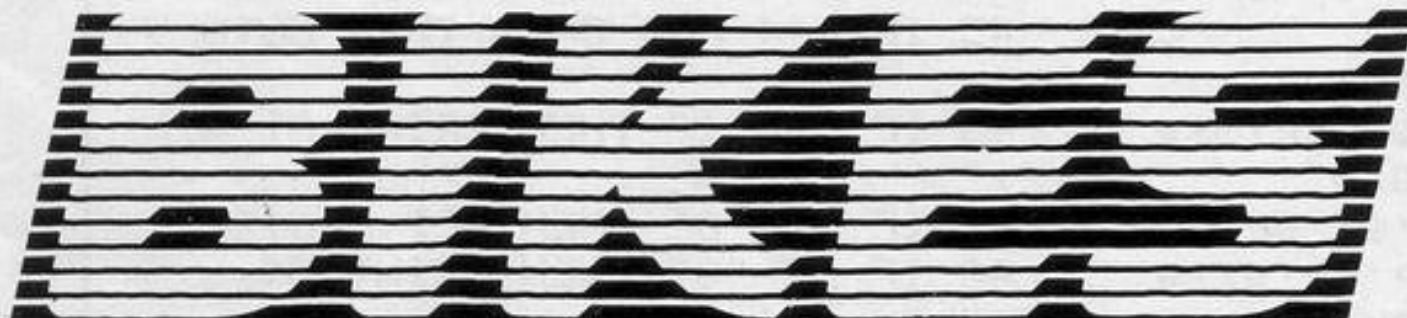


## Part 2

```

10 RESTORE : RANDOMIZE : BURDE
R 0: POKE 23693,1: POKE 23675,18
8: CLEAR 31999: LOAD "STRON2"CODE
E: CLS
20 FOR n=USR "a" TO USR "d"+7:
READ a: POKE n,a: NEXT n
30 DATA 0,0,0,0,0,0,0,0,60,255
,153,255,195,195,195,231,0,0,0,0
,0,0,0,0,60,255,153,255,60,60,60
,126
40 PRINT AT 1,13: INK 6: "PROGR
AM": FOR m=1 TO 5: FOR n=7 TO 1
STEP -1: INK n: PRINT AT 3,2: "d
bd dbdbdb dbdb dbd d d d
d b d d d d bd b"
50 PRINT AT 5,2: "b b b db d bdb b b d
bdb d d b b b"
60 PRINT AT 7,2: "d d b
d b b d d d b b b d
d d d b db"
70 PRINT AT 9,2: "bdb d b
d dbd d bd": NEXT n: NEXT
m: FOR m=0 TO 3: FOR n=0 TO 7: P
AUSE 5: PRINT AT 13,7: INK n: "By
Roger Allen 1983": NEXT n: NEX
T m
80 PLOT 0,15: DRAW INK 2:255,0
: INK 5: FOR n=255 TO 24 STEP -1
: PLOT n,16: PAUSE 2: DRAW 0,4:
NEXT n
90 FOR n=4 TO 30: FOR m=0 TO 1
: PLOT n+20,16: PAUSE 1: DRAW 0,
n: NEXT m: NEXT n
100 PLOT 51,16: DRAW OVER 1:0,4

```



## Part 2 — continued.

```

: FOR n=52 TO 255: PLOT n,16: DR
AW 0,30: NEXT n
110 LET e=1: LET f=0: LET a$="D
O YOU WANT THE INSTRUCTIONS?": L
ET d=1: LET a=40: LET b=1: LET c
=4: GO SUB 9000
120 PAUSE 4e4: IF INKEY$<>"q" T
HEN GO TO 200
130 CLS: PRINT AT 0,0: FLASH 1
: INK 2: PAPER 6: "(16*196)" AT 2
,0: "(16*196)" AT 1,0: "(196)
(196)": FLASH 0: AT 1,9:
PAPER 1: INK 5: "M.C.P. READOUT"
140 DATA "PROGRAM NAME:", "STRON
", "CRIME:", "EVADING THE M.C.P.",
"VERDICT:", "GUILTY", "PUNISHMENT:
", "TO PLAY THE GAMES", "ASSIGNED
GAME:", "LASERBIKE", "OPPONENT:",
"THE M.C.P.", "CONTROLS:", "COMPUTE
R KEYS 5 TO 0", "TASK:", "DESTROY
CRUSHERS", "RULES:", "DODGE WALLS
AND CRUSHERS", "PRIZE:", "FREEDOM"
150 RESTORE 140: LET f=2: LET
e=0: FOR m=3 TO 21 STEP 2: PAUSE
100: FOR l=0 TO 1: READ a$: LET
a=20-20*l: LET b=2: LET c=4+3*l
: LET d=m: GO SUB 9000: LET f=2+
(LEN a$ AND l=0): PAUSE 20: NEXT
l: NEXT m: LET e=1: LET f=0
200 PAUSE 100: INK 1: LET t=000
: LET w=20: LET z=1: LET a$="PRE
SS ANY KEY TO PLAY": LET d=0: LE
T a=30: LET b=1: LET c=6: GO SUB
9000
210 PAUSE 4e4
220 CLS: POKE 32009,INT (t/256
): POKE 32012,t-256*PEEK 32009:
POKE 32405,w-1: POKE 32113,w: PO
KE 32598,149-(2*(20-w)): POKE 32
520,2+(10 AND z>3): POKE 32386,1
62+(15 AND z>3)
230 FOR n=32621 TO 32621+2*w ST
EP 2: POKE n,INT (RND*19)+4: POK
E n+1,INT (RND*20)+3: NEXT n
240 PRINT AT 0,0: INK 5: "ZONE="
: z: " ("ENERGY" A
ND z<=3)+(" TIME" AND z>3)+("
t: LET l=USR 32000
250 IF l>1 OR (l=0 AND z<=3) TH
EN LET a$="PROGRAM STRON DESTROY
ED": LET a=-5: LET b=2: LET c=4:
LET d=0: GO SUB 9000: GO TO 260
-(60 AND l<>0)
260 IF l=0 AND z<=3 THEN LET a$
="ENERGY EXHAUSTED": LET d=10: G
O SUB 9000: GO TO 200
270 FOR n=40 TO 0 STEP -.5: BEE
P .008,n: BEEP .008,n-10: NEXT n

```

**Y**OUR NAME is Stron and you must play to oppose the evil Mad Control Plan. Move your laser bike with the cursor keys. If the crushers hit your trail they will be destroyed. If you hit your trail, the edge of the play area, or a guard, or if you run out of time before all the crushers are dead, you will be destroyed.

There are four levels to survive, each with a shorter time limit, and faster speeds than the previous level. On the fourth level the guards are invincible and you must try to survive until the time limit.

**Laserbikes** was written for the 16K Spectrum by Roger Allen of Gerrards Cross, Buckinghamshire. It is divided into two parts, the first of which controls the machine code. LOAD and RUN the first section, then LOAD the second section and RUN by entering GOTO 20.

```

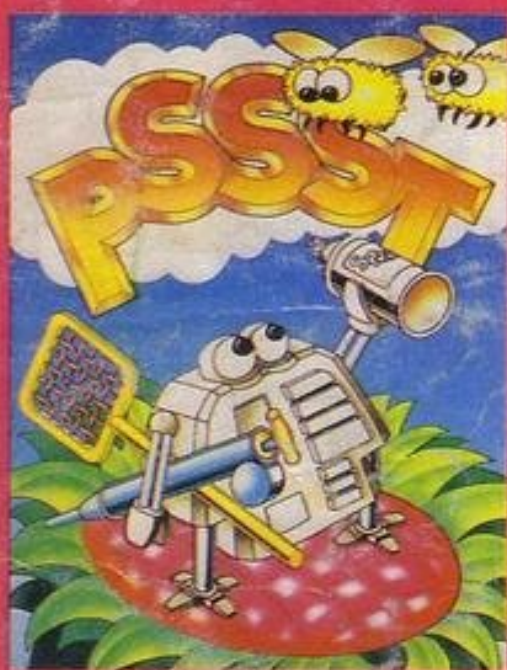
: PAUSE 20: RESTORE 300: LET z=z
+1: LET w=w-4+(12 AND z=4)+(2 AN
D z>4): LET t=t-(200 AND z<>4)-(
100 AND z=4)+(700 AND z>3)
280 FOR m=1 TO 6+(3 AND z=4): R
EAD a$: LET d=m*2+5-(5 AND z=4):
LET a=25+(10 AND m=6): LET b=2:
LET c=6: GO SUB 9000: PAUSE 10:
NEXT m
290 RESTORE 310: FOR n=1 TO 7:
READ a,b: BEEP a/2,b: NEXT n: GO
TO 220
300 DATA "CONGRATULATIONS STRON
", "YOU SURVIVED", "BUT YOU MUST B
EAT ME AGAIN", "THAT IS,", "IF YOU
WANT YOUR FREEDOM!", "HA! HA! HA
! HA! HA!", "BUT THIS TIME MY CRU
SHERS ARE", "INVINCIBLE AND YOU M
UST SURVIVE", "THE TIME LIMIT!"
310 DATA 1,75,0,.25,3,1,75,2,.2
5,5,.25,3,1,75,6,2,7
9000 PRINT #b AT d,(32-LEN a$)/2
: a+f:
9010 FOR n=1 TO LEN a$: PRINT #b
: INK c:a$(n): BEEP .01,a: NEXT
n: RETURN
9999 SAVE "STRON1" LINE 0: BEEP
1,1: SAVE "STRON2"CODE 32000,620
: BEEP 1,1

```



**LUNAR JETMAN** – For the 48K Sinclair ZX Spectrum  
**LUNAR JETMAN** – The Ultimate Intergalactic G.A.S. (Graphic Arcade Simulation) Adventure Space Battle  
**LUNAR JETMAN** – Arcade standard, 100% machine code, incredible sound effects, amazing smooth high resolution graphics, the totally new addictive concept and all those extra features you expect from the **ULTIMATE** games people.  
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**PSSST** – 19/48K ZX Spectrum

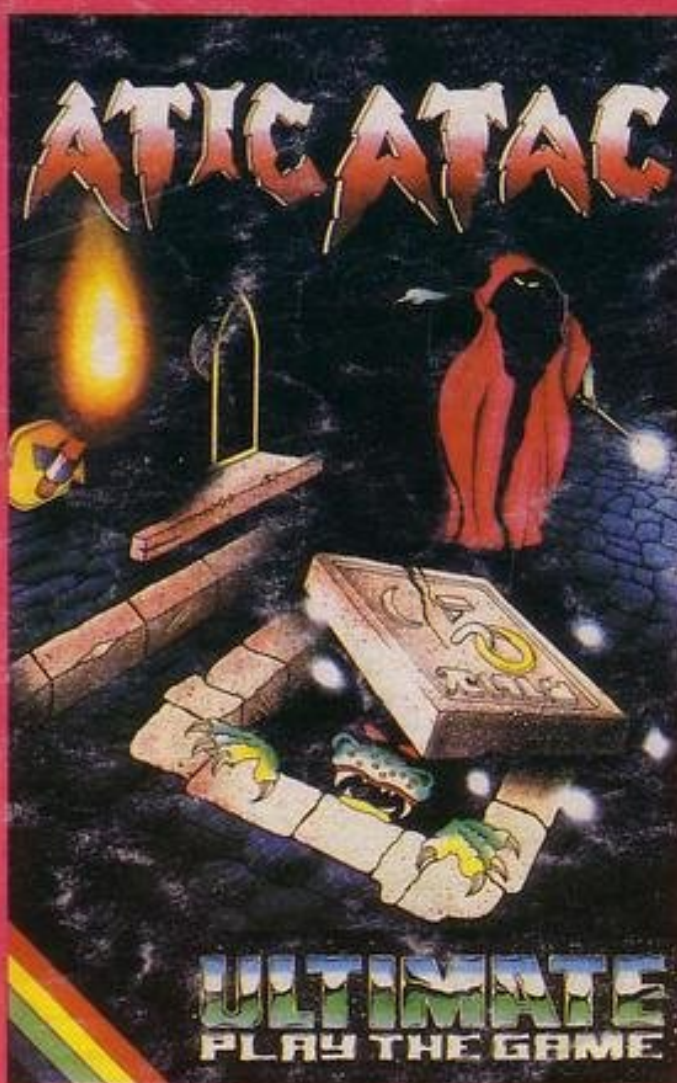
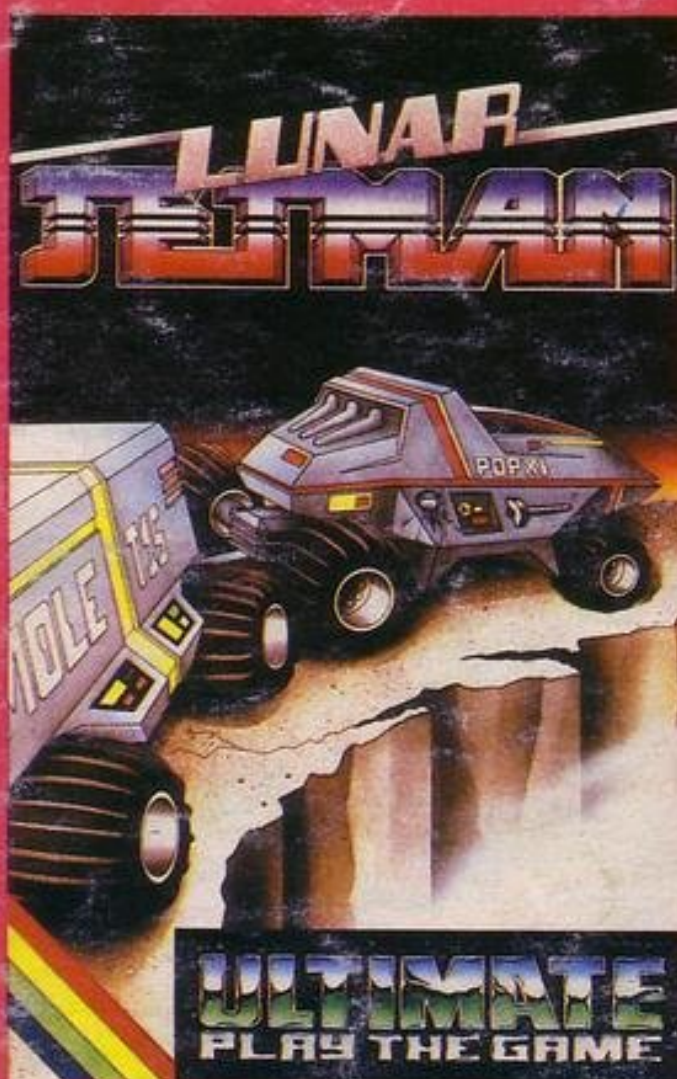


**JET PAC** – 16/48K ZX Spectrum or 8K Expanded VIC 20

These games should be available from **W.H. SMITHS, BOOTS, JOHN MENZIES, LASKYS, SPECTRUM CENTRES**, other large department stores and all good major software retailers. Alternatively, send the coupon to **ULTIMATE PLAY THE GAME** for immediate dispatch by return, subject to availability

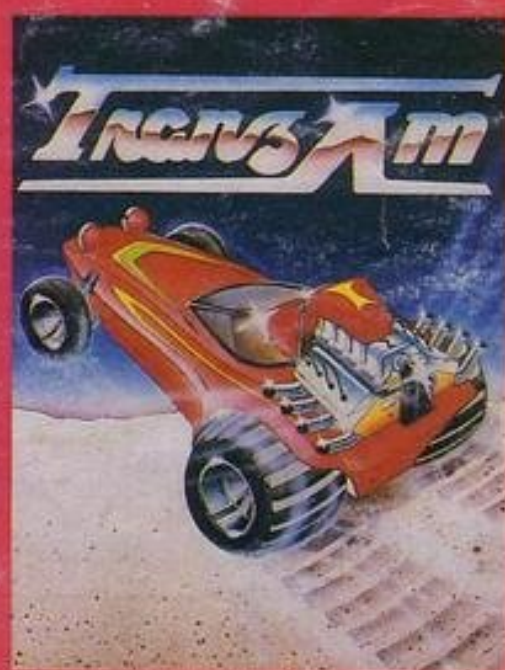
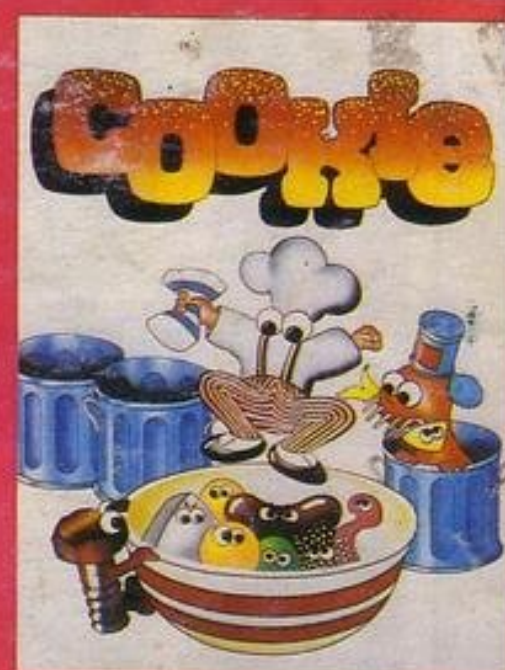
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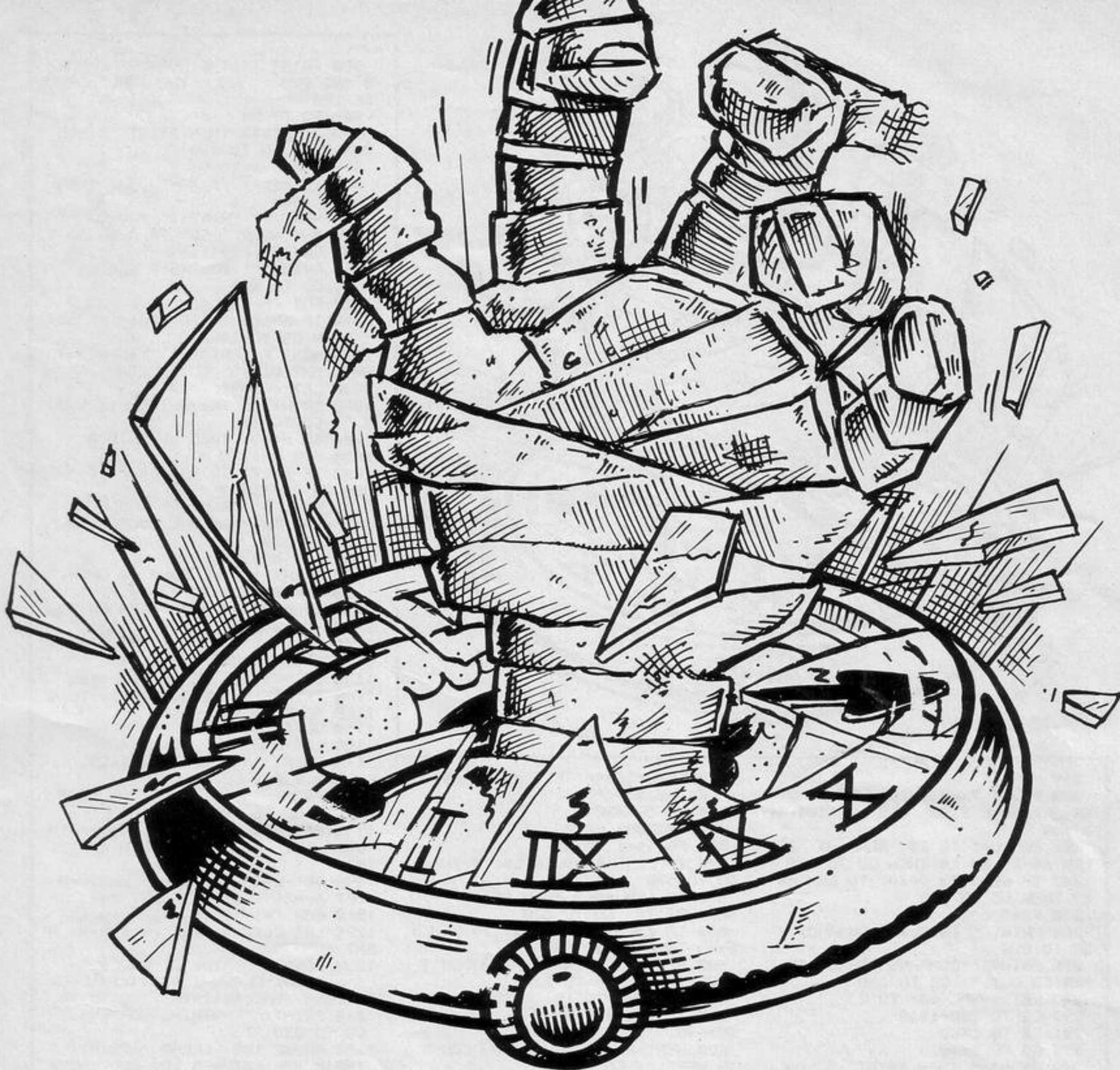
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# ESCAPE FROM TIME

**E**SCAPE FROM TIME is the first full-scale adventure program for the 48K Spectrum to be printed in *Sinclair Programs*. Your aim is to escape through time into your own world. To do so you must find the crystal of power and a microchip to power your time machine.

Once you have them you must take them to the Time Room. Commands which you will use most frequently are north, south, east, west, up, down, enter, leave, look, take, drop, list and open.

Written by Mark Chapman of Bracknell, Berkshire.

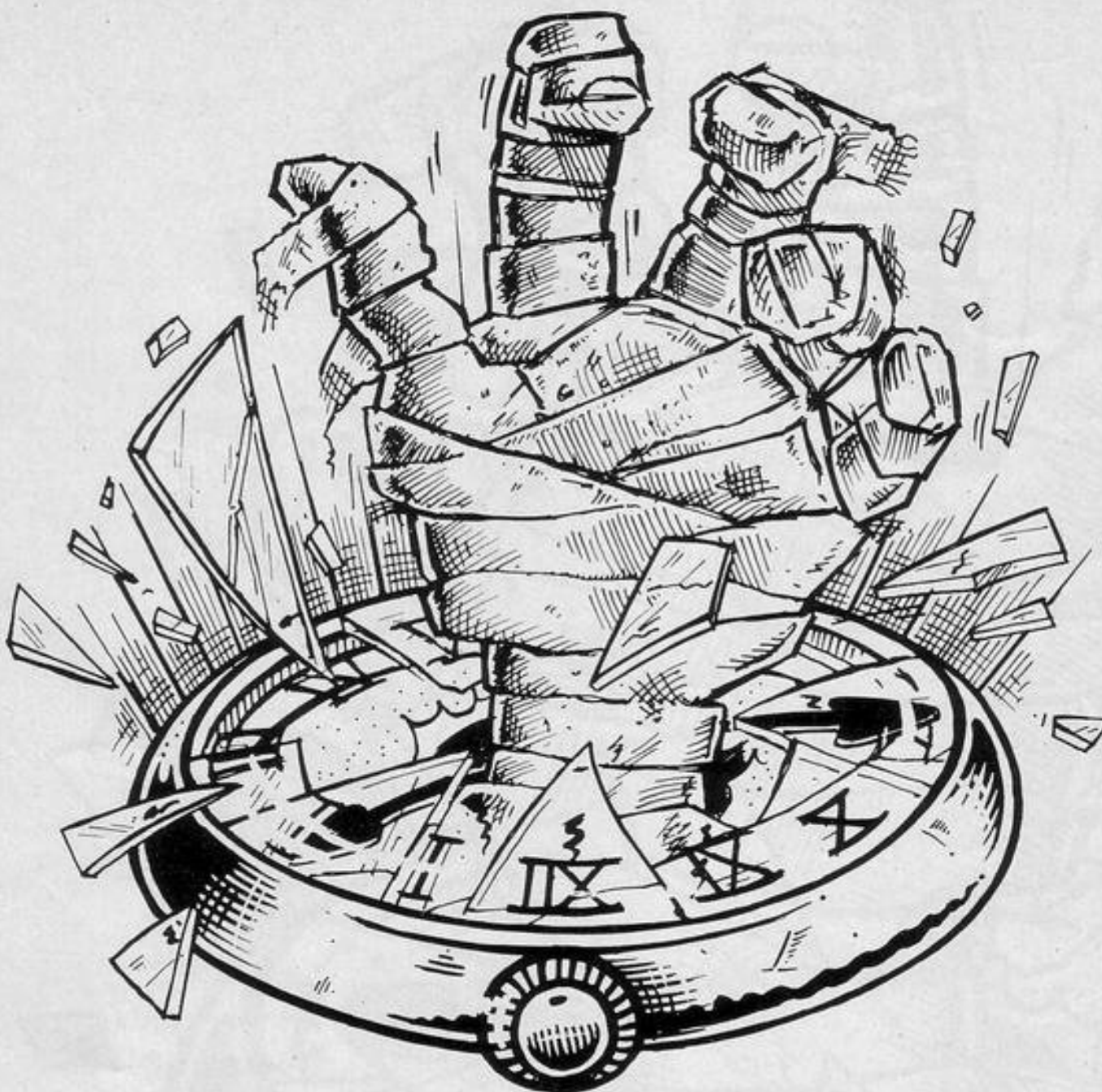
```
10 POKE 23609,20: GO TO 1190
15 PRINT " THE OBJECT IS TO E
   SCAPE BACK INTO YOUR OWN TIME
   THROUGH A TIME MACHINE. TO FLY
   THE MACHINE, A PROGRAMED MICRO-
   CHIP AND THE CRYSTAL OF POWER AR
   E NEEDED.
```

GOOD LUCK

```
1"
20 IF a(3)=0 THEN GO TO 155
30 LET n=0: LET s=0: LET e=0:
LET w=0: LET u=0: LET d=0: LET e
n=0: LET l=0: GO SUB (2000+mr*10
)+5
40 LET mr=0: LET mm=INT (RND*8
)+1
50 IF mm=6 AND n<>0 THEN LET m
r=n
60 IF mm=5 AND s<>0 THEN LET m
r=s
70 IF mm=4 AND e<>0 THEN LET m
r=e
80 IF mm=3 AND w<>0 THEN LET m
```

```
r=w
90 IF mm=2 AND u<>0 THEN LET m
r=u
100 IF mm=1 AND d<>0 THEN LET m
r=d
110 IF mm=7 AND en<>0 THEN LET
mr=en
120 IF mm=8 AND l<>0 THEN LET m
r=l
130 IF mr=0 THEN GO TO 40
140 IF mr=r THEN PRINT " IN TH
E ROOM WITH YOU IS THE MUMMY!
": LET x=x+1: GO SUB 9390
150 IF x>5 THEN GO TO 1250
155 LET n=0: LET s=0: LET e=0
LET w=0: LET u=0: LET d=0: LET e
n=0: LET l=0: GO SUB 2000+r*10
160 LET z=0
170 FOR f=1 TO 12
180 IF c(f)<>r THEN GO TO 210
190 IF z=0 THEN PRINT " THERE
IS ALSO:"
200 LET z=1: PRINT " "c(f)
```





```

210 NEXT f
220 INPUT "WHAT WILL YOU DO ?";
a$: RESTORE 9100: CLS: PRINT "
>" : a$
230 FOR c=1 TO 29: READ d$: IF
LEN d$=2 THEN GO TO 250
240 IF d$(3 TO 2)=a$( TO LEN d$-
2) THEN GO TO 280
250 NEXT c
260 PRINT "INVALID COMMAND."
GO TO 220
270 PRINT "COMMAND CANNOT BE C
ARRIED OUT." GO TO 220
280 LET z=VAL d$( TO 2)
290 GO TO 290+z*10
291 GO TO 1400
295 GO TO 1340
300 IF b>=5 THEN PRINT " YOU C
AN'T CARRY ANYMORE." GO TO 220
310 FOR f=1 TO 12
320 IF c(f)=r THEN GO TO 340
330 NEXT f: PRINT " I DON'T SE
E IT !" GO TO 220
340 IF LEN a$=5 THEN c$(f) THEN
GO TO 330
345 IF LEN a$<6 THEN PRINT " T
AKE WHAT ?" GO TO 220
350 IF a$(6 TO 2)=c$(f, TO LEN a
$-5) THEN GO TO 370
360 GO TO 330
370 FOR g=1 TO 4
380 IF b$(g,1)=" " THEN GO TO 4
00
390 NEXT g: STOP
400 LET b$(g)=c$(f)
410 LET b$(g)=c$(f)
420 LET b=b+1
430 PRINT " OKAY."
440 GO TO 220
450 FOR g=1 TO 4
460 IF LEN a$=5 THEN b$(g) THEN
GO TO 480
465 IF LEN a$<6 THEN PRINT " D
ROP WHAT ?" GO TO 220
470 IF a$(6 TO 2)=b$(g, TO LEN a
$-5) THEN GO TO 490
480 NEXT g: PRINT " YOU DON'T
HAVE IT !" GO TO 220
490 LET b=b-1
500 FOR f=1 TO 12
510 IF c(f)=0 THEN GO TO 530
520 NEXT f: STOP

```

```

530 LET c(f)=r: LET c$(f)=b$(g)
: LET b$(g)=" "
540 GO TO 430
550 RESTORE 9200
560 FOR g=1 TO 4
570 IF LEN a$=4 THEN b$(g) THEN
GO TO 590
575 IF LEN a$<5 THEN PRINT " U
SE WHAT ?" GO TO 220
580 IF a$(5 TO 2)=b$(g, TO LEN a
$-4) THEN GO TO 600
590 NEXT g: PRINT " YOU DON'T
HAVE IT !" GO TO 220
600 FOR h=1 TO 10: READ e$
610 IF VAL e$( TO 2)>r THEN GO
TO 630
620 NEXT h: PRINT " YOU CAN'T
IN HERE." GO TO 220
630 IF e$(3 TO 2)>b$(g, TO LEN
e$-2) THEN GO TO 620
640 GO TO VAL e$( TO 2)*10+3000
650 GO TO 20
660 PRINT " YOU ARE CARRYING."
670 LET g=1
680 FOR f=1 TO 4
690 IF b$(f,1)=" " THEN GO TO 7
20
700 PRINT " " : b$(f)
710 LET g=0
720 NEXT f
730 IF g THEN PRINT " NOTHING."
740 GO TO 220
750 IF n=0 THEN GO TO 1180
760 LET r=n: GO TO 20
770 IF s=0 THEN GO TO 1180
780 LET r=s: GO TO 20
790 IF e=0 THEN GO TO 1180
800 LET r=e: GO TO 20
810 IF u=0 THEN GO TO 1180
820 LET r=u: GO TO 20
830 IF v=0 THEN GO TO 1180
840 LET r=v: GO TO 20
850 IF d=0 THEN GO TO 1180
860 LET r=d: GO TO 20
870 IF en=0 THEN GO TO 1180
880 LET r=en: GO TO 20
890 IF l=0 THEN GO TO 1180
900 LET r=l: GO TO 20
910 CLEAR: STOP
920 IF r=0 THEN GO TO 940
930 IF r<>11 THEN GO TO 1240
935 LET r=0: GO TO 950
940 LET r=11

```

```

950 PRINT " THE ROCK FACE OPEN
S AND YOU WALK THROUGH." : PAU
SE 100
960 GO TO 20
970 IF r<>12 THEN PRINT " YOU
CAN'T." GO TO 220
971 FOR f=1 TO 4
980 IF b$(f, TO 4)="wood" THEN
GO TO 1000
990 NEXT f: PRINT " YOU DON'T
HAVE ANY WOOD." GO TO 220
1000 LET b$(f)="ladder"
1010 PRINT " YOU'RE A GENIUS !"
1020 GO TO 660
1030 FOR f=1 TO 4
1040 IF b$(f, TO 10)="can of oil
" THEN GO TO 1060
1050 NEXT f: PRINT " YOU DON'T
HAVE ANY OIL." GO TO 220
1060 LET o(5)=1
1070 PRINT " THE BUTTON IS LOOS
E." GO TO 220
1080 IF r<>31 THEN GO TO 270
1085 FOR f=1 TO 4
1090 IF b$(f, TO 8)="hair pin" T
HEN GO TO 1110
1100 NEXT f: PRINT " YOU NEED S
OMETHING TO PICK THE LOCK WITH."
: GO TO 220
1110 LET o(4)=1
1120 PRINT " THE DOOR IS OPEN."
: LET en=35: GO TO 220
1130 IF r=35 OR r=43 THEN GO TO
1135
1134 PRINT " I DON'T SEE A BUTT
ON !" GO TO 220
1135 IF o(5)=1 THEN GO TO 1160
1140 PRINT " THE BUTTON IS TO S
TUFF TO PUSH."
1150 GO TO 220
1160 LET r=37
1170 PRINT " THE LIFT RISES."
GO SUB 9300: GO TO 20
1180 PRINT " YOU CAN'T GO THAT
WAY." GO TO 220
1190 RESTORE 9000: DIM o(5): DIM
b$(4,10): DIM c(12): DIM c$(12,
10)
1200 LET y=0: LET yy=0: LET x=0:
LET mr=21: LET b=1: LET r=1
1210 FOR f=1 TO 12: READ a$,g
1220 LET c(f)=g: LET c$(f)=a$: N
EXT f
1230 BORDER 7: INK 0: PAPER 2: C
LS: PRINT FLASH 1: "*****ESCA
PE FROM TIME*****" GO TO 15
1240 PRINT " NOTHING HAPPENS."
GO TO 220
1250 PAUSE 100: CLEAR: PRINT "
THE MUMMY CATCHES YOU AND TAKES
YOU PRISONER OF HIS DOMAIN.THERE
IS NO ESCAPE FOR YOU...SORRY!"
1260 BEEP .001,50: BEEP .001,0:
FOR f=1 TO 5: BEEP .003,INT (RND
*20): NEXT f: BEEP .01,5: GO TO
1260
1270 IF r=21 THEN LET o(3)=1
1280 IF r=4 THEN LET o(1)=1
1290 IF r<>21 AND r<>4 THEN GO T
O 1330
1300 IF r=21 THEN PRINT " THE M
UMMY CASE OPENS RELEASING THE MU
MMY FROM ITS TOMB."
1310 IF r=4 THEN PRINT " THE DO
OR SWINGS OPEN."
1314 IF r=21 THEN GO SUB 9330
1315 IF r=4 THEN LET en=14
1320 GO TO 220
1330 PRINT " YOU CAN'T." GO TO
220
1340 IF r=mr THEN GO TO 1360
1350 PRINT " YOU CAN'T." GO TO
220
1360 FOR f=1 TO 4
1370 IF b$(f, TO 5)="knife" THEN
GO TO 1390
1380 NEXT f: GO TO 1350
1390 PRINT " YOU STAB THE MUMMY
AND IT DISINTERGRATES AT Y
OUR FEET." LET o(3)=0: LET mr=0
: GO SUB 9610: GO TO 220
1400 PRINT " YOU ENTER INTO ANO
THER ROOM THROUGH THE MIRROR."
: LET r=29: LET e=0: GO TO 220
2010 PRINT " YOU ARE AT A CROSS

```



```

-ROADS IN THE PASSAGE."
2015 LET n=2: LET s=9: LET w=8:
LET e=3: RETURN
2020 PRINT " YOU ARE AT A JUNCT
ION WHERE YOU CAN GO NORTH, WEST O
R SOUTH."
2025 LET n=5: LET w=7: LET s=1:
RETURN
2030 PRINT " YOU COME TO A JUNC
TION IN THE PASSAGE WHERE THE E
XITS ARE WEST AND NORTH. AN OPEN D
OOR IS IN THE EAST END OF THE PAS
SAGE."
2035 LET n=4: LET w=1: LET e=13:
RETURN
2040 PRINT " THE PASSAGE COMES
TO A DEAD END. A PART FROM A DOOR T
O THE EAST. "
2041 IF o(1)=0 THEN PRINT "THE D
OOR IS LOCKED TIGHT."
2042 IF o(1)=1 THEN PRINT "THE D
OOR IS WIDE OPEN." LET e=14
2045 LET s=3: RETURN
2050 PRINT " AT A TURNING IN TH
E PASSAGE, STEPS GO DOWN. THE P
ASSAGE GOES SOUTH AND EAST."
2055 LET s=2: LET e=6: LET d=10:
RETURN
2060 PRINT " A HIGH WALL SEEMS
TO PREVENT YOU FROM GOING EAST
WARDS. TO THE WEST THE WAY IS CLE
AR."
2065 LET w=5: RETURN
2070 IF o(2)=0 THEN PRINT " THE
FLOOR IS COVERED IN GREASE AND
AS YOU TRY TO GO OVER IT, YOU SLIP
BACK. IT LOOKS AS IF YOU WILL
HAVE TO GO EAST."
2073 IF o(2)=1 THEN PRINT " YOU
ARE IN A CLEAN, EAST/WEST PASS
AGE." LET w=12
2075 LET e=2: RETURN
2080 PRINT " A SHEET OF ROCK BL
OCKS YOUR WAY TO THE WEST SO EXIT
TO THE EAST."
2085 LET e=1: RETURN
2090 PRINT " YOU COME TO A JUNC
TION IN THE PASSAGE. DIRECTIONS
ARE NORTH, EAST AND SOUTH."
2095 LET n=1: LET s=17: LET e=15:
RETURN
2100 PRINT " AT THE BOTTOM OF T
HE STEPS IS A CELLAR. THE ROOM IS
PRETTY MUCH EMPTY AND VERY DIRT

```

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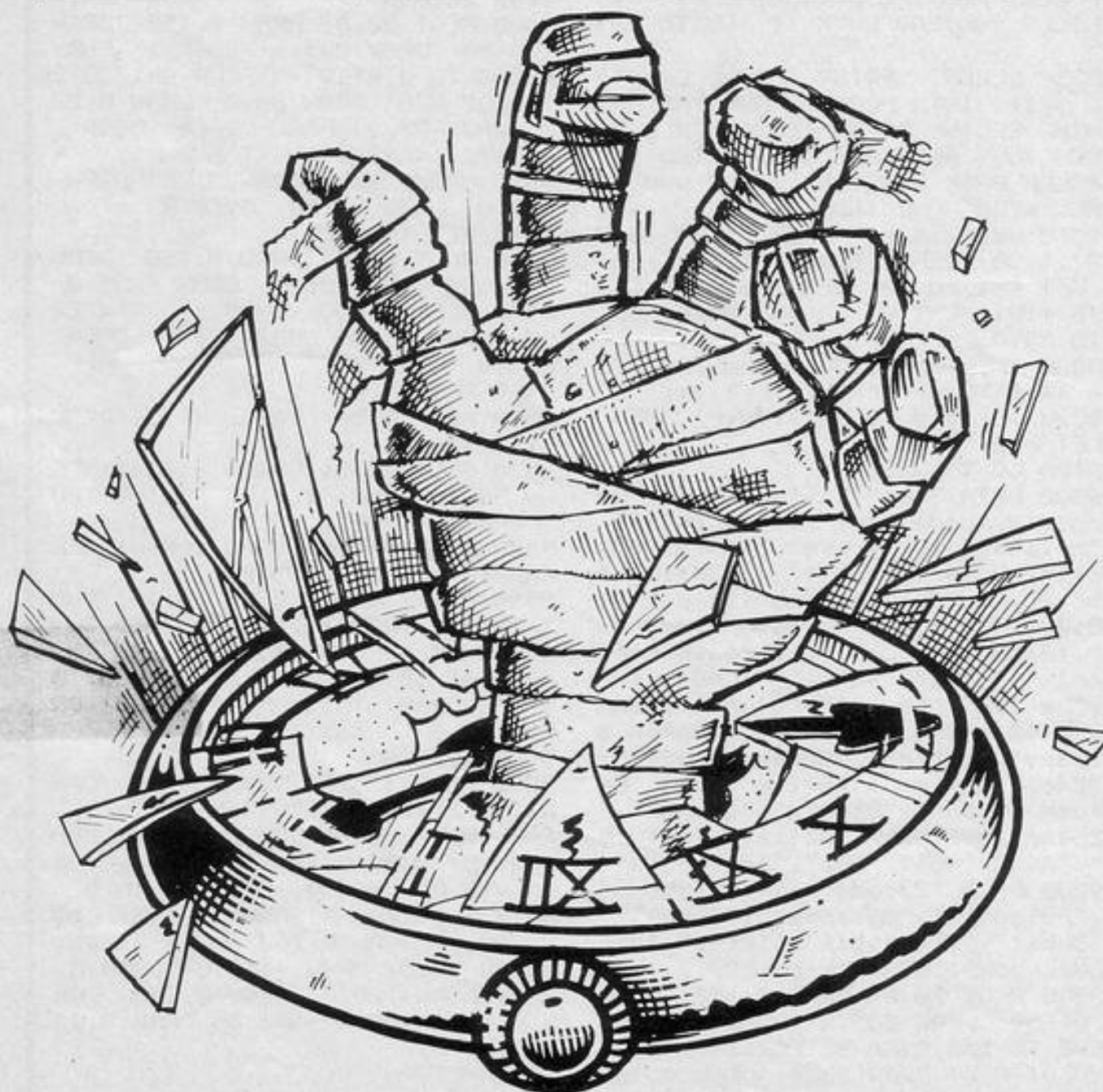
Y."
2105 LET u=5: RETURN
2110 PRINT " YOU ARE IN A ROOM
WITH A TABLE IN THE CENTRE OF IT
. BEHIND YOU, THE ROCK FACE IS CL
USED."
2115 RETURN
2120 PRINT " YOU ARE IN A WORKS
HOP. TOOLS HANG AROUND THE WAL
LS AND A WORK BENCH IS IN TH
E CENTRE."
2125 LET l=7: RETURN
2130 PRINT " YOU ARE IN THE LIV
ING QUARTERS OF A CREATURE. A FIR
E PLACE IS IN THE CORNER OF THE R
OOM."
2135 LET l=3: RETURN
2140 PRINT " THROUGH THE DOOR Y
OU FIND THAT YOU ARE IN A LIBRAR
Y. BOOKS ARE STACKED NEATLY ON S
HELVES THAT ARE VERY HIGH."
2145 LET l=4: RETURN
2150 PRINT " YOU COME TO A RIVE
R FLOWING NORTH TO SOUTH. ON T
HE BANK IS A BOAT. YOU CAN RETURN
TO THE WEST."
2155 LET w=9: RETURN
2160 PRINT " YOU ROW THE BOAT A
CROSS THE RIVER WHERE YOU ENT
ER A CAVERN. YOU BOARD LAND AND
LEAVE THE BOAT ON THE BANK."
2165 RETURN
2170 PRINT " YOU ARE AT THE TOP
OF SOME STEPS. A PASSAGE LEA
DS NORTH."
2175 LET d=18: LET n=9: RETURN
2180 PRINT " YOU ARE AT THE BOT
TOM OF THE STEPS. A CORRIDOR GOE
S NORTH AND A DOOR IS IN THE WE
ST WALL."
2185 LET u=17: LET n=19: LET w=3:
RETURN
2190 PRINT " YOU ARE IN THE CEN
TRE OF SOME PASSAGES. THEY GO NO
RTH, EAST AND SOUTH."
2195 LET e=23: LET n=21: LET s=1:
RETURN
2200 PRINT " YOU ARE IN A BROOM
CUPBOARD."
2205 LET l=19: RETURN
2210 PRINT " YOU ARE IN AN EGYP
TIAN ROOM. A MUMMY CASE STANDS I
N THE CORNER. ON IT IS INSCRIBED
~"; POKE 23606,60: POKE 23607,0

```

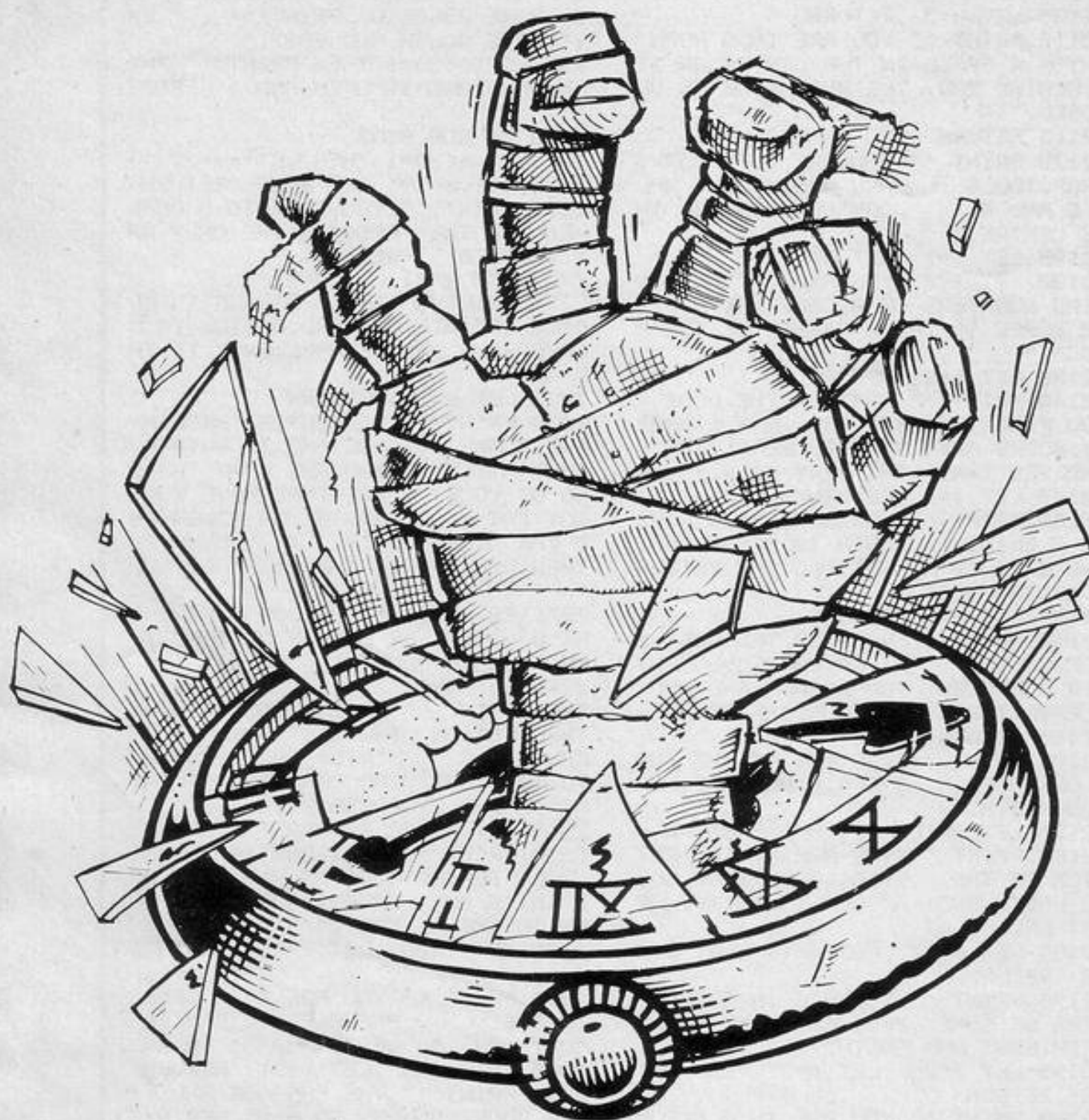
```

PRINT "BEWARE"; POKE 23607,6
0: POKE 23606,0: PRINT "~ . EX
ITS ARE SOUTH AND EAST."
2212 IF o(3)=1 THEN PRINT " THE
MUMMY CASE IS OPEN AND EMPT
Y!"
2213 GO SUB 9330
2214 IF o(3)=1 THEN LET en=27
2215 LET s=19: LET e=22: RETURN
2220 PRINT " YOU COME TO A DEAD
-END IN THE PASSAGE. THE ONLY WA
Y BACK IS WEST."
2225 LET w=21: RETURN
2230 PRINT " THIS PASSAGE IS CL
USED OFF AT ONE END. A SIGN IS U
NREADABLE ON THE WALL. EXIT TO TH
E WEST."
2235 LET w=19: RETURN
2270 PRINT " YOU ENTER THROUGH
THE MUMMY CASE AND IT SWINGS
SHUT--TIGHT! YOU ARE NEAR THE E
ND OF YOUR ADVENTURE. HAVE YOU
GOT THE CRYSTAL OF POWER AN
D THE MICRO CHIP? IF YOU HAVE
THEN USE THEM IN THE RIGHT ORDER.
"
2271 PRINT " IF YOU DON'T HAVE O
NE OF THEM OR EITHER OF THEM TH
EN YOU ARE LOST."
2275 RETURN
2280 PRINT " A HIGH WALL IS TO
THE WEST. ON THE LEFT OF THE PAS
SAGE IS A MIRROR IN THE WALL.
TO THE EAST YOU CAN SEE A TURNI
NG IN THE PASSAGE."
2285 LET e=30: RETURN
2290 PRINT " A MIRROR IS IN THE
WALL BEHIND YOU. THE ROOM YOU AR
E IN IS AN ARMARY. A DOOR IS OP
EN TO THE EAST."
2295 LET l=28: LET en=36: RETURN
2300 PRINT " YOU ARE AT A BEND
IN THE PASSAGE. YOU CAN GO
SOUTH OR WEST."
2305 LET w=28: LET s=31: RETURN
2310 PRINT " THE PASSAGE ENDS I
N A DOOR. YOU CAN GO BACK NORTH I
F YOU NEED. "
2311 IF o(4)=0 THEN PRINT "THE D
OOR IS LOCKED."
2312 IF o(4)=1 THEN PRINT "THE D
OOR IS OPEN."
2313 IF o(4)=1 THEN LET en=35
2315 LET n=30: RETURN
2350 PRINT " IN THE ROOM IS A L
IFT. THE BUTTON IS ON THE WA
LL BY IT. AN OPEN DOOR IS THE EX
IT FROM THE LIFT ROOM."
2355 LET l=30: RETURN
2360 PRINT " IN THE ROOM IS A D
RESSING TABLE"
2365 LET l=29: RETURN
2370 PRINT " THE LIFT OPENS ON
TO A HALL. YOU CAN GO BACK DOW
N OR EAST."
2375 LET d=43: LET e=38: RETURN
2380 PRINT " YOU ARE STANDING A
T A JUNCTION. YOU MAY GO NORTH, WE
ST OR SOUTH."
2385 LET w=42: LET n=39: LET s=4:
RETURN
2390 CLEAR: PRINT " YOU FALL I
NTO A PIT COVERED BY FLOOR TILES
AS THEY OPEN UNDER YOUR FEET. Y
OU TRY TO GRASP THE EDGE BUT MI
SS AND FALL TO YOUR DEATH." PA
USE 300: GO SUB 9460
2395 BEEP .003,10: BEEP .01,0: B
EEP .02,INT (RND*10): GO TO 2395
2400 PRINT " YOU WALK INTO A RO
OM AND ON THE FLOOR YOU SEE A TR
AP DOOR. YOU WILL HAVE TO GO BAC
K NORTH, BUT ONLY ONCE."
2405 LET n=38: LET s=41: RETURN
2410 GO TO 2390
2420 GO SUB 9530: PRINT " YOU A
RE BACK AT THE LIFT. YOU CAN ON
LY GO DOWN OR BACK EAST."
2425 LET e=39: LET d=43: RETURN
2430 GO SUB 9500: PRINT " THE L
IFT OPENS ONTO THE GROUND FLOOR.
A DOOR IS OPEN IN THE WEST WALL O
F THE ROOM. PUSH THE BUTTON TO GO
BACK UP."
2435 LET l=30: RETURN

```







3060 PRINT " THE LADDER REACHES THE TOP OF THE WALL AND YOU CLIMB UP IT.ON TOP OF THE WALL YOU PICK IT UP AND USE IT TO GET DOWN THE OTHERSIDE."

3065 LET r=20: GO TO 220

3070 PRINT " THE GREASE WASHES OFF THE FLOORMAKING IT CLEAN."

3075 LET a(2)=1: GO TO 20

3150 FOR f=1 TO 4: IF b\*(f, TO 4)="oars" THEN GO TO 3153

3151 NEXT f

3152 CLEAR: GO SUB 9560: PRINT " THE BOAT DRIFTS DOWN STREAM AS YOU DON'T HAVE ANY OARS,AS YOU DRIFT YOU HIT YOUR HEAD AND FALL OVERBOARD.UNABLE TO REACH THE BANK,YOU DROWN." GO TO 2395

3153 PRINT " YOU ROW THE BOAT TO THE OTHER BANK."

3154 IF r=15 THEN GO TO 3157

3155 LET r=15: GO TO 20

3157 LET r=16: GO TO 20

3160 GO TO 3150

3180 PRINT " THE DOOR UNLOCKS AND FALLS OPEN" LET en=20: GO TO 220

3210 PRINT " THE WRITING ON THE MUMMY CASE SAYS "BEWARE" GO TO 220

3230 PRINT " THE SIGN SAYS~USE THE WORDS "OPEN SESAME" IN THE RIGHT PLACE AND YOUR WAY WILL BE CLEARED." GO TO 220

3270 IF a\*(5 TO )="micro-chip" OR a\*(5 TO )="m" AND y=1 THEN GO TO 3320

3275 GO TO 3380

3280 PRINT " YOU CLIMB OVER THE WALL." LET r=5: GO TO 20

3290 IF a\*(5 TO )="crystal" OR a\*(5 TO )="c" AND y=1 THEN GO TO 3350

3300 IF a\*(5 TO )="crystal" OR a\*(5 TO )="c" THEN LET y=1

3310 GO TO 220

3320 CLEAR: PRINT " AS YOU REACH IN AND CONNECT THE MICRO-CHIP, POWER FROM THE CRYSTAL IMMEDIATELY KILLS YOU.BAD LUCK !" GO TO 2395

3350 CLEAR: PRINT " THE CRYSTAL SLIPS INTO PLACE AND THE MACHINE BEGINS TO SHAKE.YOU FALL UNCONCIOUS AND WAKE UP TO FIND YOURSELF BACK HOME IN YOUR OWN TIME. WELL DONE INDEED!"

3360 BEEP .1,10: BEEP .1,20: BEEP .1,30: BEEP .1,20: BEEP .1,10: FOR f=1 TO 10: BEEP .01,INT (f/10)+10: NEXT f: GO SUB 9420: GO TO 3350

3380 IF a\*(5 TO )="micro-chip" OR a\*(5 TO )="m" THEN LET y=1

3390 IF a\*(5 TO )="ladder" THEN LET r=6

3400 GO TO 3290

9000 DATA "key",11,"oars",12,"wood",13,"code book",14,"boat",15,"crystal",16,"knife",29,"can of oil",10,"micro-chip",40,"hair pin",36,"mop",20,"torch",1

9100 DATA ".190 through mirror", ".1enter mirror", ".1through mirror", ".5kill", ".46north", ".40south", ".50east", ".52west", ".54up", ".56down", ".58enter", ".60leave", ".63open sesame", ".98open", ".68make ladder", ".74oil button", ".79pick lock", ".84 push button", ".81take", ".16drop", ".26use", ".36look", ".37list", ".62quit", ".46n", ".48s", ".50e", ".52w", ".56d"

9200 DATA "23code book", ".16boat", ".20ladder", ".06ladder", ".07mop", ".15boat", ".27crystal", ".10key", ".21code book", ".27micro-chip"

9300 PLOT 20,0: DRAW 0,150: DRAW 0,-50: DRAW 235,0: OVER 1: FOR h=0 TO 100 STEP 3: FOR g=1 TO 2: PLOT 0,h: DRAW 20,0: DRAW 0,20:

DRAW -20,0: DRAW 0,-20: BEEP .01,h/2: NEXT g: NEXT h

9310 DRAW 20,0: DRAW 0,20: DRAW -20,0: DRAW 0,-20: OVER 0

9320 RETURN

9330 PLOT 122,0: DRAW 20,0: DRAW 5,40: DRAW -15,10: DRAW -15,-10: DRAW 5,-40

9340 IF a(3)=1 THEN GO TO 9370

9350 POKE 23607,0: PRINT AT 17,15:"fgh"

9360 POKE 23607,60: GO TO 9380

9370 PLOT 152,0: DRAW 20,0: DRAW 5,40: DRAW -15,10: DRAW -15,-10: DRAW 5,-40

9380 RETURN

9390 PLOT 80,0: DRAW 4,30: DRAW 0,20: DRAW -3,-20: DRAW -6,0: DRAW 3,20: DRAW 10,0: DRAW -2,10: DRAW 11,0: DRAW -2,-10: DRAW 10,0

9400 DRAW 3,-20: DRAW -6,0: DRAW -3,20: DRAW 0,-20: DRAW 4,-30: DRAW -22,0: DRAW 10,0: DRAW 1,15: DRAW 1,-15

9410 RETURN

9420 OVER 1: FOR h=0 TO 50 STEP 4: FOR g=1 TO 2: BEEP .01,20: PLOT 120,h: DRAW 40,0: DRAW 10,30: DRAW -15,0: DRAW -15,5: INK 5: DRAW 4,4: DRAW -4,4: DRAW -4,-4: DRAW 4,-4: INK 0: DRAW -15,-5: DRAW -15,0: DRAW 10,-30

9430 NEXT g: NEXT h: OVER 0

9440 OVER 1: PLOT 120,h: DRAW 40,0: DRAW 10,30: DRAW -15,0: DRAW -15,5: INK INT (RND\*7): DRAW 4,4: DRAW -4,4: DRAW -4,-4: DRAW 4,-4: INK 0: DRAW -15,-5: DRAW -15,0: DRAW 10,-30

9450 PAPER 0: BORDER 0: CLS: PAPER 7: BORDER 7: CLS: RETURN

9460 PLOT 0,100: DRAW 255,0: DRAW -130,0: DRAW OVER 1,40,0: DRAW -2,-25

9470 PLOT 125,0: DRAW 50,0: DRAW 0,10: DRAW -6,0: DRAW 0,-4: DRAW -30,2: DRAW -10,-2: DRAW -5,2: DRAW -7,-7,PI: DRAW 3,-1: DRAW 3,0

9480 PLOT 145,3: DRAW 0,-1: DRAW -15,0: DRAW 0,2: DRAW 15,0: DRAW 0,-1: DRAW 2,0

9490 RETURN

9500 PLOT 20,0: DRAW 0,150: DRAW 0,-50: DRAW 235,0: OVER 1: FOR h=100 TO 0 STEP -3: FOR g=1 TO 2: PLOT 0,h: DRAW 20,0: DRAW 0,20: DRAW -20,0: DRAW 0,-20: BEEP .01,h/2: NEXT g: NEXT h

9510 DRAW 20,0: DRAW 0,20: DRAW -20,0: DRAW 0,-20: OVER 0

9520 RETURN

9530 PLOT 20,0: DRAW 0,150: DRAW 0,-50: DRAW 235,0: DRAW -235,0

9540 PLOT 0,100: OVER 1: DRAW 20,0: DRAW 0,20: DRAW -20,0: DRAW 0,-20: OVER 0

9550 RETURN

9560 PLOT 0,50: DRAW 127,2: DRAW 127,-2

9570 PLOT 40,51: DRAW -10,15: DRAW 80,0: DRAW -1,-14: PLOT 0,100: DRAW 50,-30

9580 DRAW 40,10: DRAW 100,-10: DRAW 10,10: DRAW 55,0

9590 PLOT 50,30: DRAW -5,10: PLOT 50,30: DRAW 10,10: PLOT 50,30: DRAW 10,5: PLOT 50,30: DRAW 10,0: PLOT 50,30: DRAW 0,10: PLOT 50,30: DRAW -10,5: PLOT 50,30: DRAW -10,0

9600 RETURN

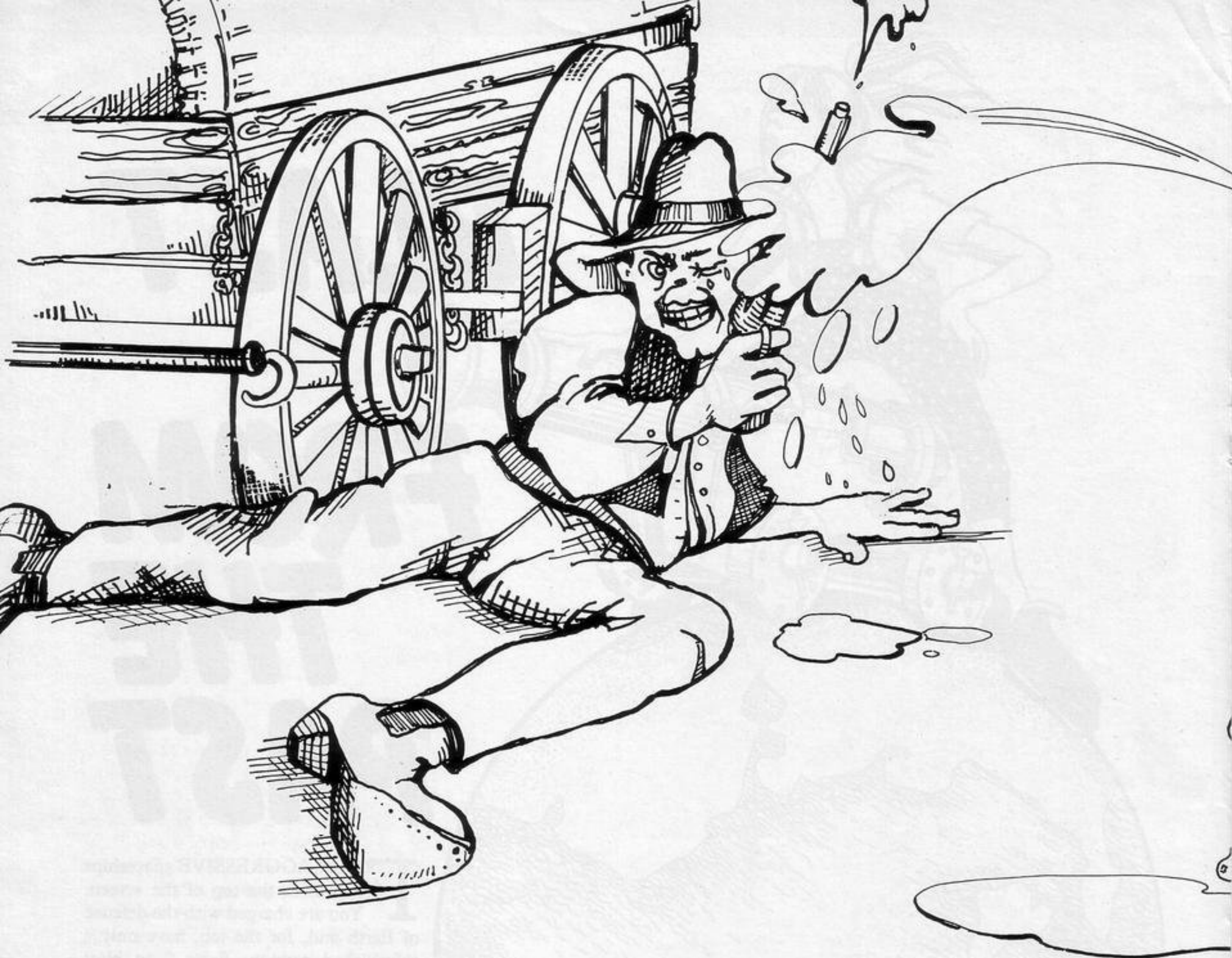
9610 PLOT 125,20: DRAW 20,0: DRAW INK 3,10,0: DRAW INK 2,3,-2: DRAW INK 2,-3,-2: DRAW -30,0: DRAW 0,-5: DRAW 0,14: DRAW 0,-6: DRAW -10,0: DRAW 0,-2: DRAW 10,0

9620 PLOT 40,30: DRAW 100,0: DRAW -50,0: DRAW 0,100: DRAW 0,-80: DRAW 50,0: DRAW -100,0: DRAW 0,-20: DRAW 100,0: DRAW 0,120: DRAW 0,-120: DRAW -100,0: DRAW 0,120

9630 RETURN

9630 RETURN





```

30 PRINT "Two rival gangs arm
ed with water pistols meet up one
night in the desert to fight."
40 PRINT "The gang on my left
are "; INK 3; "MAGENTA"
50 PRINT "The gang on my right
are "; INK 1; "BLUE"
60 PRINT "Please wait whilst
the user defines graphics
are loaded" "In good SINCLAIR t
radition some music (?) will be
played while you wait."
70 GO SUB 9000
80 DIM a$(704)
90 PRINT OVER 1; INK 4; PAPER
0; AT 0,0;a$
100 BORDER 4
110 PRINT AT 21,2;"Press ENTER
key TO CONTINUE "
120 PAUSE 4e4
140 PRINT AT 1,0; OVER 1; INK 7
;a$( TO 672)
150 PRINT AT 2,0;"A MESSAGE TO
THE "; INK 1;"BLUE"; INK 0;"GAN
G"
160 PRINT "Your controls are ;
-"
170 PRINT "KEY! FUNCTION"
180 PRINT " 1 !Moves you up."
190 PRINT " 2 !Moves you down."
200 PRINT " 0 !Draw (you can't
move now)."
210 PRINT " W !Put gun back in
holster (you can move again n
ow)."
220 PRINT " A !SQUIRT [fire]."
230 PRINT AT 21,2;"Press ENTER
key TO CONTINUE "

```

```

240 BORDER 0
250 PAUSE 4e4
260 PAPER 2; INK 7; PRINT AT 0,
0; INK 6; PAPER 2; OVER 1;a$(AT
1,0; OVER 0;a$( TO 672)
350 PRINT AT 2,0;"A MESSAGE TO
THE "; INK 3;"MAGENTA"; INK 7;"
GANG"
360 PRINT "Your controls are ;
-"
370 PRINT "KEY! FUNCTION"
380 PRINT " 0 !Moves you up."
390 PRINT INK 2; PAPER 0;"SYMBOL
SHIFT"; INK 7; PAPER 2;"!Moves
you down."
400 PRINT " P !Draw (you can't
move now)."
410 PRINT " 0 !Put gun back in
holster (you can move again n
ow)."
420 PRINT " L !SQUIRT [fire]."
430 PRINT AT 21,2;"Press ENTER
key TO CONTINUE "
440 PAUSE 4e4
450 PRINT AT 1,0;a$( TO 672)
460 BORDER 6
500 PRINT AT 1,0;" AND SOME INS
TRUCTIONS TO BOTH:-"
510 PRINT "You may press more
than one key at a time."
520 PRINT "You may shoot out an
y object."
530 PRINT "You can move off the
screen" "(i.e. if you move off
the top you reappear at the bo
ttom)."
540 PRINT "Only one pair of gun
men fight at once BUT sometimes a

```

WAGGON will come down the screen to try and shoot you in the legs but you will survive if you are behind a CACTUS."

```

550 PRINT FLASH 1' BRIGHT 1'"ST
ART THE TAPE"
560 LOAD ""

```

```

600 SAVE "WAIT THEN STOP TAPE"
LINE 1
8999 STOP

```

```

9000 FOR j=144 TO 164: BEEP .4,-
140+(j*1.2): FOR k=0 TO 7: BEEP

```

```

.002,40+(k*2): READ n: POKE USR
CHR# j+k,n: NEXT k: NEXT j
9020 RETURN

```

```

9030 DATA 24,126,24,24,126,126,1
26,126,126,126,60,60,60,60,126,2
55,24,126,24,24,63,63,60,60,56,5
6,24,24,24,24,20,30,0,0,0,0,222,
200,0,0,24,126,24,24,252,252,60,
60,20,20,24,24,24,24,50,120,0,0,
0,0,123,11,0,0,0,0,0,0,64,97,127
,127,0,0,2,2,15,255,242,243,0,0,
64,64,240,255,79,207,0,0,0,0,2,1
30,254,254,31,40,96,64,192,128,1
20,120,240,12,6,2,3,1,1,1,192,64
,64,64,64,127,127,15,3,2,2,2,2,2
54,254,240,244,244,244,254,254,4
,4,4,47,47,47,127,127,32,32,32,1
45,66,60,37,164,60,66,137,0,2,7,
71,231,231,231,231,231,119,127,6
2,60,60,60,60

```





# SHOOT OUT

I H BALCHIN of Wallingford, Berkshire is a keen computer programmer. He reads at least eight micro magazines each month to know all the latest news about computers and his friends are shown his perfected programs so that he can benefit from their advice and opinions.

While working on **Shoot Out** for the 16K Spectrum he was trying to write a game which two players could play simultaneously, as he felt there were insufficient of them on the market.

In **Shoot Out** two rival gangs meet in the desert for a fight with water pistols. The blue gang moves up with I, down with Z, draws with Q, replaces guns with W, and squirts with A. The magenta team moves up with O, down with symbol shift, draws with P, replaces guns with O, and squirts with L.

Both gangs must avoid the cowboys who drive past in a wagon, occasionally shooting any gangster who is not safely behind a cactus.

```

1 BORDER 0: PAPER 0: INK 9: C
LS T
10 LET a=21: LET b=0: LET c=1:
LET d=31
20 LET ls=0: LET rs=0: U
100 PRINT AT 10,1:"SHOOT OUT "
101 PRINT " INK 1:"BLUE", INK 3
:"MAGENTA", INK 6:"1.....UP.....
...0", "0.....DRAW.....P", "W..RE
PLACE GUN..0", "A.....FIRE....."
: INK 7:"ENTER", INK 6:"Z.....DO
WN.....": INK 2:"SYMBOL SHIFT"
102 FOR s=0 TO 3 T
105 BEEP .1,0: BEEP .1,1: BEEP
.07,0: BEEP .2,-1
106 FOR f=-40 TO 40 STEP 10: FO
R g=0 TO .9 STEP .1: BEEP .01,f+
9: NEXT g: NEXT f
107 NEXT s RQ
108 BEEP 2,30: BEEP 1,35: BEEP
.5,40: BEEP .25,45: BEEP .1,50
900 CLS: PRINT AT 21,2: PAPER
1: INK 7:" SCORE ":lsTAB 14: PA
PER 3: INK 7:" SCORE ":rs
RANDOMIZE
910 INK 4: BRIGHT 1: FOR f=3 TO
10 STEP 3: PRINT AT f,5:"T":AT
f-1,26:"T":AT f+1,5:"U":AT f,26:
"U": NEXT f
911 INK 8
920 FOR f=0 TO 3: PRINT AT f*6,
14: INK 7:"mn":AT f*6+1,14: INK
2:"OP":AT f*6+2,14: INK 2:"RQ":
NEXT f
930 BRIGHT 0
1005 LET z=145: LET x=145
1010 FOR q=20 TO 20+INT (RND*300

```

```

1011 LET a=a-(IN 63486=254 AND x
<>147)+(IN 65278=253 AND x<>147)
+(a<2)-(a>20)
1020 LET c=c-(IN 61438=254 AND z
<>150)+(IN 32766=253 AND z<>150)
+(c<2)-(c>20)
1022 IF IN 64510<>255 THEN LET x
=147
1023 IF IN 57342<>255 THEN LET z
=150
1024 IF IN 64510=253 THEN LET x=
145: PRINT AT a-1,1:" "
1025 IF IN 57342=253 THEN LET z=
145: PRINT AT c-1,30:" "
1026 BEEP .005,-10: BEEP .005,69
1030 IF a>=21 THEN LET a=2: PRIN
T AT 19,0:" ":AT 20,0:" "
1031 IF a<21 THEN PRINT AT a+1,0
:" "
1032 IF c<21 THEN PRINT AT c+1,3
1:" "
1035 PRINT AT 0,0:" ":AT 0,31:"
"
1040 IF c>=21 THEN LET c=2: PRIN
T AT 19,31:" ":AT 20,31:" "
1050 IF c>1 THEN PRINT AT c-2,31
:" "
1051 IF c<=1 THEN LET c=20: PRIN
T AT 1,31:" ":AT 2,31:" "
1060 IF a>1 THEN PRINT AT a-2,0:
" "
1061 IF a<=1 THEN LET a=20: PRIN
T AT 1,0:" ":AT 2,0:" "
1070 PRINT AT a,b: INK 1:CHR$ x:
AT a-1,0: INK 1:CHR$ (x-1):AT c,
d: INK 3:CHR$ z:AT c-1,d: INK 3:
CHR$ (z-1)
1080 IF x=147 THEN PRINT AT a-1,

```

```

1: INK 1:"e"
1001 IF z=150 THEN PRINT AT c-1,
30: INK 3:"h"
1090 IF IN 65022<>255 AND x=147
THEN GO SUB 3000
1100 IF IN 49150<>255 AND z=150
THEN GO SUB 3100
2000 NEXT q
2010 LET q=INT (RND*2)
2011 IF q=1 THEN LET w=c
2012 IF q=0 THEN LET w=a
2013 LET r=q*11+9
2015 FOR f=1 TO w-1
2020 PRINT AT f-1,r:" ":AT f,r:
INK 7:"mn":AT f+1,r: INK 2:"OP"
:AT 2+f,r: INK 2:"RQ": BEEP 0.01
,f*3
2030 NEXT f
2040 IF q=1 THEN GO TO 2500
2050 PRINT AT a,r-1: INK 3:"hf"
2060 IF ATTR (a,5)>=64 THEN GO T
O 2200
2100 INK 6: PLOT 54,171-(a*8): D
RAW -50,0: BEEP .01,39: DRAW OVE
R 1,50,0: GO TO 3300
2200 INK 6: PLOT 54,171-(a*8): D
RAW -11,0: BEEP .01,60: PRINT AT
a,5:"S": DRAW OVER 1,11,0: PRIN
T AT a,5:" "
2225 GO SUB 6e3
2231 FOR f=w-1 TO 10
2235 PRINT AT f-1,r:" ":AT f,r:
INK 7:"mn":AT f+1,r-1: INK 2:"
OP":AT 2+f,r: INK 2:"RQ": BEEP
.01,f*3
2236 NEXT f
2239 PRINT AT f-1,r:" ":AT f,r:
" ":AT f+1,r:" "

```





```

2240 GO TO 1010
2500 PRINT AT c,r+1: INK 1:"ce"
2510 IF ATTR (c,26)>=64 THEN GO
TO 2600

2520 INK 6: PLOT 195,171-(c*8):
DRAW 56,0: BEEP .01,60: DRAW OVE
R 1;-56,0: GO TO 3200
2600 INK 6: PLOT 195,171-(c*8):
DRAW 26,0: BEEP .01,60: PRINT AT
c,26:"S": DRAW OVER 1;-26,0
2610 PRINT AT c,26:" ": GO TO 22
25

3000 IF ATTR (a-1,5)>=64 THEN GO
TO 4050
3010 IF ATTR (a-1,14)>=64 THEN G
O TO 4140
3020 IF ATTR (a-1,15)>=64 THEN G
O TO 4150
3030 IF ATTR (a-1,26)>=64 THEN G
O TO 4260
3085 INK 7: PLOT 16,179-(a*8): D
RAW 238,0: BEEP .01,60: DRAW OVE
R 1;-238,0: PLOT OVER 1;254,179-
(a*8)
3090 IF a=c OR a-1=c THEN GO SUB
3200
3099 RETURN
3130 IF ATTR (c-1,26)>=64 THEN G
O TO 5260
3160 IF ATTR (c-1,15)>=64 THEN G
O TO 5150
3170 IF ATTR (c-1,14)>=64 THEN G
O TO 5140
3190 IF ATTR (c-1,5)>=64 THEN GO
TO 5050
3190 PLOT 238,179-(c*8): DRAW -2
35,0: BEEP .005,40: BEEP .005,50
: DRAW OVER 1;235,0: PLOT OVER 1
;3,179-(c*8)
3195 IF c=a OR c-1=a THEN GO SUB
3300
3199 RETURN
3200 PRINT AT c,30: INK 3:"IJ":A

```

```

T c-1,30:" "
3205 LET ls=ls+1
3215 PRINT AT 0,2: INK 5:"<--THI
S GUN-MAN WINS": FOR f=-60 TO 60
: BEEP .01,f: NEXT f
3216 IF ls=10 THEN GO TO 3600
3220 CLS: LET a=INT (RND*19)+2:
LET c=INT (RND*19)+2: GO TO 900
3300 PRINT AT a,0: INK 1:"kl":AT
a-1,0:" "
3305 LET rs=rs+1
3310 IF rs=10 THEN GO TO 3500
3315 PRINT AT 0,2: INK 5:"THIS G
UN-MAN WINS-->": FOR f=-60 TO 60
: BEEP .01,f: NEXT f
3320 CLS: LET a=INT (RND*19)+2:
LET c=INT (RND*19)+2: GO TO 900
3500 CLS: FOR f=0 TO 9: PRINT A
T f,0: INK 1:"kl": BEEP .5,0: NE
XT f
3510 FOR f=1 TO ls: PRINT AT f,3
0: INK 3:"IJ": BEEP .5,0: NEXT f
3520 INK 3: FOR f=21 TO 20+10-ls
: PRINT AT 10,f:"a":AT 11,f:"b":
BEEP 1,f*2/3: NEXT f
3530 INK 5: PRINT AT 15,2:"THE F
ASTEST SHOT---->"
3599 GO TO 7e3
3600 CLS: FOR f=0 TO 9: PRINT A
T f,30: INK 3:"IJ": BEEP .5,0: N
EXT f
3610 FOR f=1 TO rs: PRINT AT f,0
: INK 1:"kl": BEEP .5,0: NEXT f
3620 INK 1: FOR f=1 TO 10-rs: PR
INT AT 10,f:"a":AT 11,f:"b": BEE
P 1,f*5: NEXT f
3630 INK 5: PRINT AT 15,2:"<----
THE FASTEST SHOT"
3700 GO TO 7e3
4050 PLOT 16,179-(a*8): DRAW 30,
0: BEEP .02,-10: DRAW OVER 1;-30
,0: PRINT AT a-1,5:"S": BEEP .00
5,0: PRINT AT a-1,5:" "

```

```

4059 RETURN
4140 PLOT 16,179-(a*8): DRAW 99,
0: BEEP .02,-10: DRAW OVER 1;-99
,0: PRINT AT a-1,14:"S": BEEP .0
05,0: PRINT AT a-1,14:" "
4149 RETURN
4150 PLOT 16,179-(a*8): DRAW 110
,0: BEEP .02,-10: DRAW OVER 1;-1
10,0: PRINT AT a-1,15:"S": BEEP
.005,0: PRINT AT a-1,15:" "
4159 RETURN
4260 PLOT 16,179-(a*8): DRAW 197
,0: BEEP .02,-10: DRAW OVER 1;-1
97,0: PRINT AT a-1,26:"S": BEEP
.005,0: PRINT AT a-1,26:" "
4269 RETURN
5050 PLOT 238,179-(c*8): DRAW -1
93,0: BEEP .02,-5: DRAW OVER 1;1
93,0: PRINT AT c-1,5:"S": BEEP .
005,5: PRINT AT c-1,5:" "
5059 RETURN
5140 PLOT 238,179-(c*8): DRAW -1
21,0: BEEP .02,-5: DRAW OVER 1;1
21,0: PRINT AT c-1,14:"S": BEEP
.005,5: PRINT AT c-1,14:" "
5149 RETURN
5150 PLOT 238,179-(c*8): DRAW -1
12,0: BEEP .02,-5: DRAW OVER 1;1
12,0: PRINT AT c-1,15:"S": BEEP
.005,5: PRINT AT c-1,15:" "
5159 RETURN
5260 PLOT 238,179-(c*8): DRAW -2
3,0: BEEP .02,-5: DRAW OVER 1;23
,0: PRINT AT c-1,26:"S": BEEP .0
05,5: PRINT AT c-1,26:" "
5269 RETURN
5999 STOP
6000 FOR v=-40 TO 60 STEP 20: FO
R s=40 TO -60 STEP -20: BEEP .01
,s: BEEP .01,v: NEXT s: NEXT v:
RETURN
7000 PRINT "AGAIN?": IF INKEY#<>
"" THEN RUN
7001 GO TO 7e3

```



# AGF

## PROGRAMMABLE JOYSTICK INTERFACE



for  
**Spectrum**  
or **ZX81**

### ABOUT OUR PROGRAMMABLE INTERFACE

Surpassing the outstanding specification of our Interface Module II which still offers the best software support at its price, a Joystick Interface that is compatible with ALL SOFTWARE through its unique hardware programmable design.

The Interface plugs on to the rear connector of your ZX81 or ZX Spectrum.

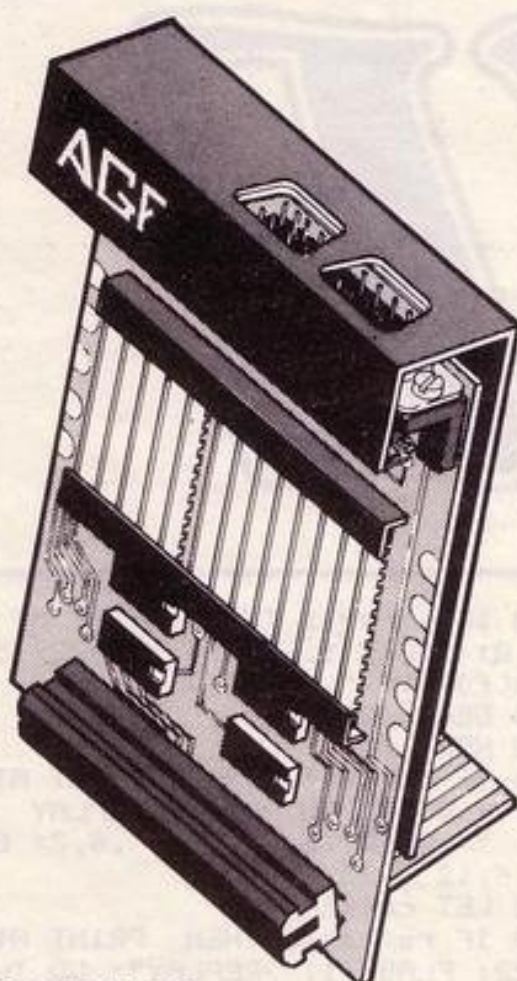
Quick clip-on connections, which are configured from a reference card supplied, allow you to define which of the forty keys are simulated by which action of the Joystick. A pack of ten Quick Reference Programming Cards makes setting for your favourite games even easier. These can be filled in to show at a glance the configuration required and stored in the cassette case of the particular game. When you change to a game using different keys the module is re-programmed in a few seconds.

As with our Interface Module II the Programmable Interface accepts all standard switch Joysticks that are Atari-compatible. Two sockets are available which are connected together for two player games which use the same keys for both players.

The Interface resides in the keyboard address space and does not affect its operation or interfere with any other add-ons. A rear extension edge connector will accommodate expansion of your system.

The unique AGF key simulation principle makes it extremely easy to incorporate Joystick action in your own programs. All eight directions and fire are read by simple BASIC.

With every order comes a free demonstration program called 'Video Graffiti' plus a full set of instructions.



### KEY FEATURES

- ★ Programmable design gives TOTAL software support.
- ★ Accepts Atari, Competition Pro, Wico, Starfighter, Quick Shot, Le Stick etc.
- ★ Rear extension connector for all other add-ons.
- ★ Free demo program and instructions.

### PACKAGE CONTENTS SUPPLIED

- Programmable Interface Module as illustrated, complete with clip-on programming leads.
- Self adhesive programming chart detailing how to define which key is simulated by UP, DOWN, LEFT, RIGHT, and FIRE. This can be fixed on to the case of your computer or if preferred the protective backing can be left on. The chart is made of a very durable reverse printed plastic and is extremely easy to read.
- One pack of ten Quick Reference Programming Cards for at-a-glance setting to your games requirements. The card allows you to mark the configuration in an easy to read fashion with space to record the software title and company name.
- Video Graffiti demonstration program which is written totally in BASIC to illustrate how all eight directions and fire can be read. This is also a useful high resolution drawing program.
- 12 months guarantee and full written instructions.

## JOYSTICKS

ATARI  
CONTROLLERS

FOR USE WITH OUR INTERFACE  
Module or VIC 20, Commodore 64,  
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QTY	ITEM	ITEM PRICE	TOTAL
	PROGRAMMABLE INTERFACE	33.95	
	JOYSTICK(S)	7.54	
	PACK(S) QUICK REFERENCE CARDS	1.00	
ONE	VIDEO GRAFFITI	FREE	
ZX81 <input type="checkbox"/> ZX SPECTRUM <input type="checkbox"/> Please tick DEALER ENQUIRIES WELCOME    EXPORT PRICES ON APPLICATION		FINAL TOTAL	



# Spectrum FILE

```

2 REM @ WAEL SABBAGH
3 DIM A$(30,8,20)
4 LET FCF=1
10 BORDER 1: PAPER 1: INK 6: C
LS
15 POKE 23656,8
20 PRINT AT 10,8; FLASH 1;"FIL
E"
25 PRINT AT 11,3;"BY WAEL SABB
AGH"
40 INPUT "SECRET CODE TO ENTER
TO FILES";B$
50 IF B$<>"PMP" THEN BEEP .3,-
10: GO TO 40
60 CLS
70 BEEP .1,10
80 PRINT AT 0,10;"MENU"
90 PRINT
100 PRINT "1 TO OPEN A NEW FILE
105 PRINT
110 PRINT "2 TO LOOK AT A CERTA
IN FILE"
115 PRINT
120 PRINT "3 TO HAVE A LOOK AT
EACH FILE (ON LY FILE CODE AND N
AME) AT THE SAME TIME"
125 PRINT
130 PRINT "4 SAVE FILES ON TAPE
135 PRINT
140 PRINT "5 LPRINT A FILE ON T
HE PRINTER"
145 PRINT
150 PRINT "6 SEARCH THROGH ALL
FILES"
155 PRINT
160 PRINT "7 CHANGE INFORMATION
FROM FILE"
175 PRINT : PRINT "8 STOP"
180 INPUT "CHOICE PLEASE (1/8)"
C
190 IF C=1 THEN GO TO 300
200 IF C=2 THEN GO TO 500
210 IF C=3 THEN GO TO 1000
220 IF C=4 THEN GO TO 1100
230 IF C=5 THEN GO TO 1500
240 IF C=6 THEN GO TO 2000
250 IF C=7 THEN GO TO 2500
260 IF C=8 THEN GO TO 3000
270 GO TO 180
300 DATA "FILE CODE ","NAME ","
ADDRESS ","TOWN ","COUNTRY ","PO
STCODE ","TELEPHONE ","OTHER INF
O "
310 CLS : RESTORE 300
315 IF FCF>30 THEN BEEP .1,4: P
RINT "","NO PLACE FOR DATA": GO
TO 410
317 LET A$(FCF,1)=STR$ FCF
320 PRINT AT 0,8;"NEW FILE ENTR
Y"
330 PRINT : READ B$: PRINT B$;F
CF
340 FOR X=2 TO 8: READ B$
350 INPUT (B$);A$(FCF,X)
360 IF LEN A$(FCF,X)>20 THEN GO
TO 350
370 PRINT B$;A$(FCF,X)
380 BEEP .2,X*5
390 PRINT
400 NEXT X
405 LET FCF=FCF+1
410 PRINT FLASH 1;"PRESS ANY KE
Y TO GO TO MENU"
420 IF INKEY$="" THEN GO TO 420
430 GO TO 60
500 CLS

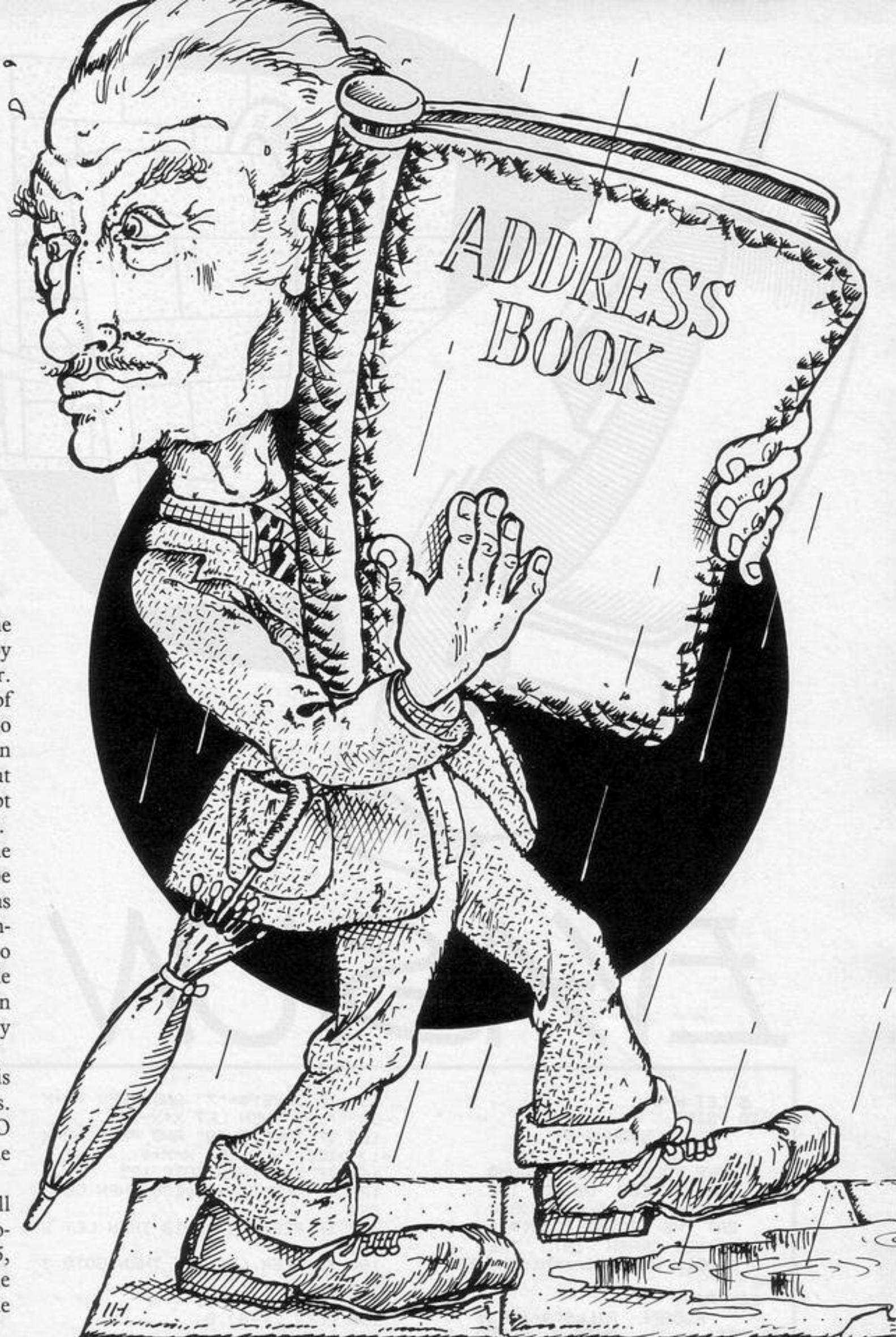
```

```

510 PRINT AT 0,7;"FILE DISPLAY"
: PRINT
530 PRINT "HIT 1 IF YOU KNOW TH
E FILE CODE"
535 PRINT : PRINT "HIT 2 IF YOU
KNOW NAME (NOT ADVISBLE)"
536 PRINT : PRINT "HIT 3 IF YOU
KNOW TEL (NOT ADVISBLE)"
537 PRINT : PRINT "HIT 4 TO MEN
U"
540 IF INKEY$="" THEN GO TO 540
550 IF INKEY$="1" THEN INPUT "F
ILE CODE ";F: LET U=1: GO TO 700
560 IF INKEY$="2" THEN INPUT "N
AME PLEASE ";F$: LET U=2: GO TO
575
570 IF INKEY$="3" THEN INPUT "T
EL PLEASE ";F$: LET U=7: GO TO 5
75
571 IF INKEY$="4" THEN GO TO 60
572 GO TO 540
575 FOR X=LEN F$+1 TO 20: LET F
$=F$+" ": NEXT X
580 FOR X=1 TO FCF: IF A$(X,U)=
F$ THEN LET F=X: GO TO 700
590 NEXT X
595 CLS
600 PRINT "NAME / TEL NOT IN FI
LE"
610 GO TO 520
700 RESTORE 300: CLS
710 READ B$: PRINT B$;F
720 FOR X=2 TO 8
730 PRINT
740 READ B$: PRINT INK 6;B$;: B
EEP .02,X*2: PRINT INK 7;A$(F,X)
: BEEP .02,X*3
750 NEXT X
760 PRINT
770 GO TO 410
1000 CLS
1005 PRINT FLASH 1;"NAME","FILEC
ODE"
1010 FOR X=1 TO FCF
1020 PRINT A$(X,2);" ";A$(X,1) (
TO 3)
1030 NEXT X
1040 GO TO 410
1055 BEEP .03,X
1100 CLS
1110 PRINT AT 0,5;"SAVE FILE ON
TAPE"
1120 PRINT : PRINT
1130 PRINT "INSERT BLANK TAPE"
1140 PRINT "THEN PRESS ANY KEY"
1150 IF INKEY$="" THEN GO TO 115
0
1160 SAVE "FILE" LINE 10
1170 BEEP .3,-10
1180 PRINT
1190 PRINT "REWIND TAPE TO VERIF
Y"
1200 PRINT "THEN PRESS ANY KEY"
1210 IF INKEY$="" THEN GO TO 121
0
1220 VERIFY "FILE"
1230 GO TO 410
1500 CLS : PRINT AT 0,4;"PRINTER
DISPLAY"
1520 PRINT : PRINT FLASH 1;"IF Y
OU ARE NOT SURE OF FILE CODE THE
N USE OPTION 3 (ON MENU) TO FIND
OUT"
1540 PRINT : PRINT "PRESS P TO P
RINT FILE ON PRINTER"
1550 PRINT "PRESS M TO GO TO MEN
U"

```





**A** VERY USEFUL routine for the 16K Spectrum has been sent by Wael Sabbagh of Colchester. **Spectrum File** provides a method of storing the names and addresses of up to 30 individuals. Only 20 characters can be handled on each line of input but that should be no disadvantage, except perhaps on the Other Information line.

Since some of the information in the file may be confidential, the files can be accessed only when the secret code has been entered. STOP and LIST commands would allow the Sinclair user to crack that deadlock quickly. The code as listed is PMP but can be altered in line 50. The routine is served by a very useful menu.

As with all filing routines, the user is well-advised to avoid RUN commands. If the program is broken into, then GO TO 60 will return you safely to the menu.

On a 48K machine, the routine will handle details on 150 individuals provided the number 30 in lines 3, 315, 1590 and 2520 is altered to 160. If the program is to be saved, option 4 of the menu should be used.

```
1560 IF INKEY$<>"P" AND INKEY$<>
"M" THEN GO TO 1560
1570 IF INKEY$="M" THEN GO TO 41
0
1580 INPUT "ENTER FILE CODE ";F
1590 IF F<1 OR F>30 THEN GO TO 1
560
1600 RESTORE 300: LPRINT "SABBAG
H SOFTWARE FILE PROG"
1610 LPRINT
1620 FOR X=1 TO 8
1630 READ K$: LPRINT K$;A$(F,X)
1640 LPRINT
1650 NEXT X
1660 LPRINT "
```

```
1670 GO TO 60
2000 CLS
2010 FOR X=1 TO FCF-1
2020 RESTORE 300
2030 FOR K=1 TO 8
2040 READ B$
2050 PRINT B$;A$(X,K)
2060 PRINT : NEXT K
2100 PRINT FLASH 1;"PRESS ANY KE
Y TO CON (M TO MENU)"
```

```
2110 IF INKEY$="" THEN GO TO 211
0
2120 IF INKEY$="M" THEN GO TO 60
2130 CLS : NEXT X
2140 GO TO 410
2500 RESTORE 300: CLS
2510 INPUT "WHAT FILE WOULD YOU
LIKE TO CHANGE INFO FROM ";F
2520 IF F<1 OR F>30 THEN GO TO 2
510
2530 PRINT FLASH 1;"WHAT WOULD Y
OU LIKE TO CHANGE"
2540 PRINT "INPUT 9 TO GO TO MEN
U"
2550 FOR C=1 TO 8
2555 READ B$
2560 PRINT FLASH 1,C; FLASH 0;B$
;A$(F,C)
2570 NEXT C
2580 INPUT "CHANGE (9 TO MENU) ";
D
2590 IF D=9 THEN GO TO 60
2600 INPUT "THE NEW VERSION";A$(
F,D)
2610 CLS : RESTORE 300: GO TO 25
30
3000 CLS : PRINT AT 10,4; FLASH
1;"FILE CLOSED"
```



# SABRE WOLF

ULTIMATE  
PLAY THE GAME

48K SINCLAIR ZX SPECTRUM  
£9.95







```

H 1;AT 0.7;"Jannis the Menace"
9910 PRINT " (no relation to
Dennis) The object of this g
ame is to knock the cans off t
he the wall before your Granny C
omes with her elephant hide De
mon Wacker Slipper!!!
The controls are:-
6--Left
7--Right
0--Fire"

```

```

9920 PRINT AT 21,0;"Press any ke
y to continue": PAUSE 0: BEEP 1,
10: BEEP .5,-30: CLS

```

```

9921 PRINT "You can only fire a
stone when the cataPult looks l
ike this e

```

```

f. When you have cleare
d a sheet of cans you will hav
e a chance to get some more tim
e before Granny comes.You do
this by knocking the Policem
ans hat off before he reaches th
e other side of the wall if he r
eaches the other side you will
lose forty Points!!

```

```

If there are no can
s left and the Police man's hat
does not appear then there is
an invisible can somewh
ere on the wall you have to fin
d it,you maysee the can disappea
ring.

```

Good luck

```

9922 PRINT AT 21,0;"Press any ke
y to continue": PAUSE 0: BEEP 1,
10: BEEP .5,-30: CLS
9999 GO TO 15

```



# APE HUNT

**M**OVE YOURSELF, the plus sign, up and down the screen with the usual cursor keys until you are in line with the approaching ape. When you are both in the same position press "F" to catch the ape. After catching 10 apes your time will be displayed.

The personal best time of Martin Booth of Halifax, Yorkshire who wrote the program for the 16K ZX-81, is 87.

```

2 LET B=0
3 LET Z=0
4 LET D=15
5 LET E=INT (RND*10)
6 LET F=INT (RND*5)+12
7 FOR A=0 TO 21
8 LET C=14
10 PRINT AT A,0;"(isp'9a'28*1s
p'9a'1sP)",
15 NEXT A
18 PRINT AT 1,5;"SCORE=";Z

```

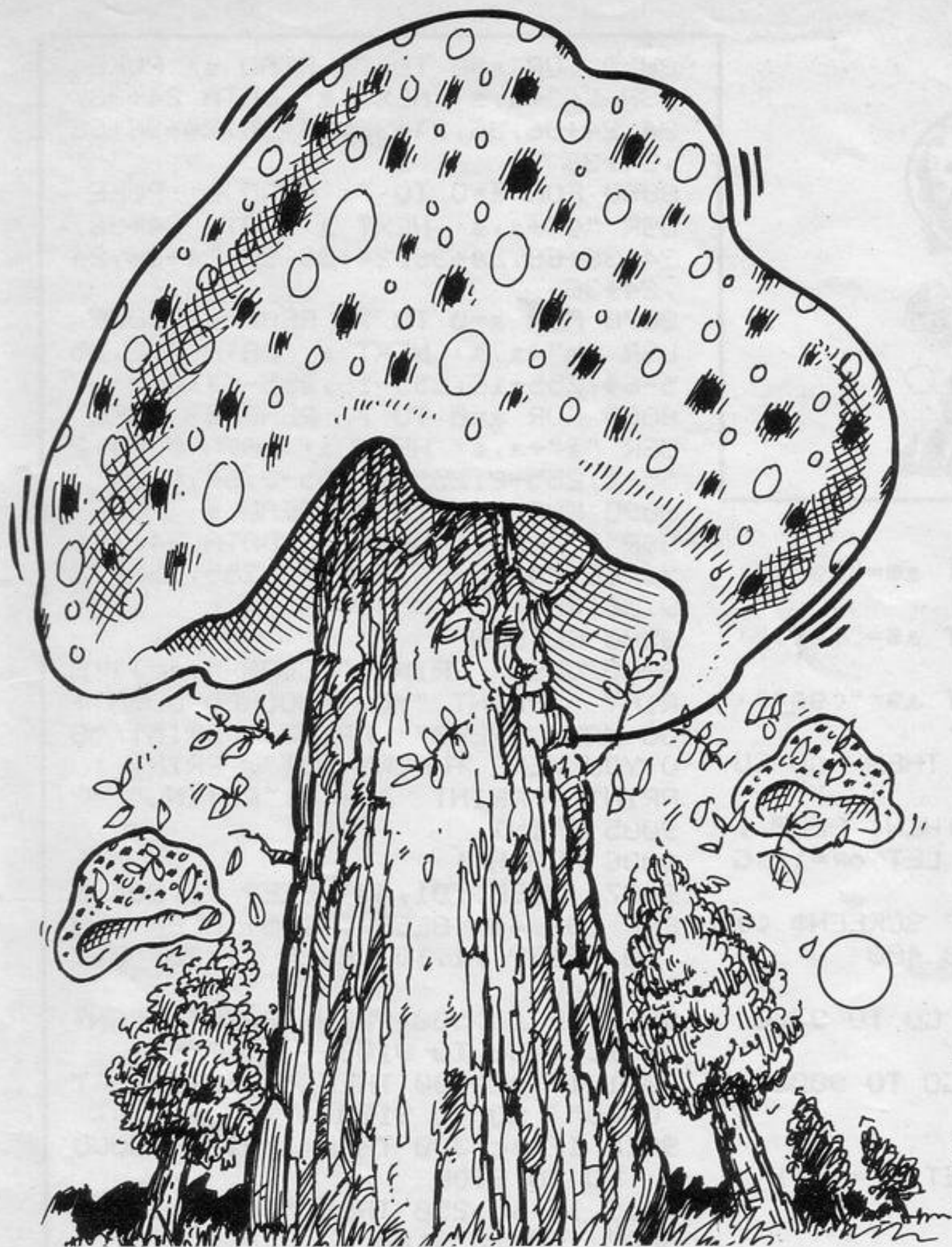
```

19 PRINT AT 1,20;"TIME=";B
20 PRINT AT 10,2;"(9f'26*9a'9f
)"
21 PRINT AT 9,10;"(9a'8*5p'9a)"
22 PRINT AT 8,11;"(9a)HUNTER(9
a)"
23 PRINT AT 7,12;"(9a'4*5p'9a)"
24 PRINT AT 6,13;"(9a'2*5p'9a)"
25 PRINT AT 5,14;"(2*9a)"
26 PRINT AT 4,14;"(98'95)"
30 PRINT AT D,C;"+";AT D,C;"(i
sP)"
33 LET B=B+1
35 PRINT AT F,27;"(3*1sP)"
40 LET D=D+(INKEY#="6")-(INKEY
#="7")
44 IF D=21 THEN LET D=20
45 IF D=11 THEN LET D=12
50 PRINT AT F,E;"(isp'9a'93'1s
P)"
55 LET E=E+1
60 IF F=D AND E=C AND INKEY#="
F" THEN GOSUB 200
65 IF E=27 THEN LET E=3
100 GOTO 30
200 LET Z=Z+1
205 IF Z=10 THEN PRINT AT 12,8;
"your time was ";B
206 IF Z=10 THEN LET D=D-1
207 PRINT AT D,C;"+";AT D+1,C;
"(2*1sP)"
208 IF D=5 THEN GOTO 220
210 IF Z=10 THEN GOTO 205
215 GOTO 4
220 PRINT AT D,C;"(2*1+)" ;AT D,
C;"+"
230 GOTO 220
300 SAVE "J"
310 RUN

```







# TREE EATERS

**T**REE EATERS for the 16K Spectrum was written by A Beardmore of Stoke-on-Trent, Staffs. Stop the Martians eating our forests for the vital resources they lack on their planet.

```
1 BORDER 0: PAPER 0: INK 6: C
LS
```

```
2 PRINT "YOU(9f) MUST KILL TH
E MARTIAN TREE EATERS "; INK
2;"9p"; INK 6;" AT ALL COSTS": P
RINT "BUT DON'T KNOCK DOWN THE T
REES": PRINT : PRINT "O=UP. K=DO
WN. S=RIGHT. A=LEFT. ": PRINT :
PRINT "BUT CAREFUL YOU HAVE NO B
RAKE"
```

```
3 PRINT AT 21,0;"PRESS ANY KE
Y TO START GAME"
```

```
15 GO SUB 8000: PAUSE 0
```

```
16 FOR a=0 TO 21: INK 2
```

```
17 PRINT AT a,0:"
```

```
" : NEXT a
```

```
20 PRINT AT 1,1: INK 6;"(30*9a
)" AT 21,1;"(30*9b)"
```

```
21 INK 6
```

```
25 FOR a=2 TO 20: PRINT AT a,0
;"(9c)" AT a,31;"(9d)": NEXT a
```

```
29 LET a=0
```

```
30 PRINT AT INT (RND*19)+2,INT
(RND*30)+1: INK 4;"(9e)": LET a
```

```
=a+1: IF a<80 THEN GO TO 30
```

```
40 PRINT AT 9,14;"(9a)" AT 9,1
6;"(9a)" AT 12,14;"(3*9b)"
```

```
50 FOR a=10 TO 11: PRINT AT a,
13;"(9c)" AT a,17;"(9d)": NEXT a
```

```
PRINT AT 8,14: INK 2:" "
```

```
55 PRINT AT 0,1:"SCORE:=0
```

```
TREES KILLED:=0 "
```

```
60 LET x=0
```

```
65 LET sc=0: LET tr=0
```

```
70 LET a$="(99)"
```

```
80 LET op=0: LET a=11: LET s=1
5
```

```
85 LET q=INT (RND*19)+2: LET w
=INT (RND*30)+1
```

```
86 PRINT AT q,w: INK INT (RND*
3)+1;"(9p)"
```

```
100 PRINT AT a,s:a$
```

```
120 IF INKEY$="a" THEN LET x=1
```

```
130 IF INKEY$="s" THEN LET x=2
```

```
140 IF INKEY$="o" THEN LET x=3
```

```
150 IF INKEY$="k" THEN LET x=4
```

```
155 PRINT AT a,s: INK 2:" "
```

```
170 IF x=1 THEN LET a$="(9h)":
```





```

LET s=s-1
171 IF x=2 THEN LET a$="(91)":
LET s=s+1
172 IF x=3 THEN LET a$="(9f)":
LET a=a-1
173 IF x=4 THEN LET a$="(99)":
LET a=a+1
175 IF ATTR(a,s)=6 THEN GO SUB 410: LET op=1
176 IF a=9 AND s=w THEN BEEP .05,40: LET sc=sc+10: LET op=1: GO SUB 500: GO TO 85
177 IF op=0 THEN IF SCREEN$(a,s)<>" " THEN GO SUB 400
178 LET op=0
180 IF sc>500 THEN GO TO 9700
200 PRINT AT a,s;a$
210 IF tr>15 THEN GO TO 9000
250 LET op=0
300 GO TO 100
405 BEEP .09,-20: LET tr=tr+1: GO SUB 500
406 RETURN
410 IF x=1 THEN LET s=s+1
411 IF x=2 THEN LET s=s-1
412 IF x=3 THEN LET a=a+1
413 IF x=4 THEN LET a=a-1
420 PRINT AT a,s;a$: RETURN
500 PRINT AT 0,8;sc:AT 0,20;tr
510 RETURN
8000 FOR a=0 TO 7: READ s: POKE USR "a"+a,s: NEXT a: DATA 0,0,0,0,24+36,128+64+3,255,255
8010 FOR a=0 TO 7: READ s: POKE USR "b"+a,s: NEXT a: DATA 255,255,128+64+3,24+36,0,0,0,0
8020 FOR a=0 TO 7: READ s: POKE USR "c"+a,s: NEXT a: DATA 7,7,11,11,11,11,7,7
8030 FOR a=0 TO 7: READ s: POKE USR "d"+a,s: NEXT a: DATA 128+64+32,128+64+32,128+64+16,128+64+16,128+64+16,128+64+16,128+64+32,128+64+32
8040 FOR a=0 TO 7: READ s: POKE USR "e"+a,s: NEXT a: DATA 24,24+36+2,24+36+66,255-129,24+36,24,24,24

```

```

8050 FOR a=0 TO 7: READ s: POKE USR "f"+a,s: NEXT a: DATA 24+36,24,24+36,36,24+36,24+36,24+36+66,24+36
8060 FOR a=0 TO 7: READ s: POKE USR "g"+a,s: NEXT a: DATA 24+36,24+36+66,24+36,24+36,36,24+36,24,24+36
8070 FOR a=0 TO 7: READ s: POKE USR "h"+a,s: NEXT a: DATA 0,2,255-64,255-16,255-16,255-64,2,0
8080 FOR a=0 TO 7: READ s: POKE USR "i"+a,s: NEXT a: DATA 0,64,255-2,255-8,255-8,255-2,64,0
8090 FOR a=0 TO 7: READ s: POKE USR "p"+a,s: NEXT a: DATA 24,24+36+66,24+36+66,255-36,255,255-129,36,36
8500 RETURN
9000 CLS: PRINT "SCORE ";sc: PRINT: PRINT "YOU KNOCKED DOWN TOO MANY TREES": PRINT: PRINT "SO YOU WERE THROWN OUT": PRINT: PRINT: PRINT INK 7;"RATING"
9005 PRINT
9006 FLASH 1
9007 BEEP .01,40: BEEP .1,20: BEEP .02,40: BEEP .1,15: BEEP .03,40: BEEP .1,10: BEEP .1,20: BEEP .1,40
9010 IF sc>500 THEN PRINT "FANTASTIC": GO TO 9100
9011 IF sc>400 THEN PRINT "VERY GOOD": GO TO 9100
9012 IF sc>300 THEN PRINT "GOOD": GO TO 9100
9013 IF sc>250 THEN PRINT "NOT BAD": GO TO 9100
9014 IF sc>200 THEN PRINT "BAD": GO TO 9100
9015 IF sc>150 THEN PRINT "VERY BAD": GO TO 9100
9016 IF sc>100 THEN PRINT "OLD GRANNY": GO TO 9100
9017 IF sc>=0 THEN PRINT "FORGET IT": GO TO 9100
9100 GO TO 9500
9500 FLASH 0: PRINT AT 21,0;"ANOTHER GO(Y/N)"
9600 IF INKEY$="" THEN GO TO 9500
9610 IF INKEY$="y" THEN RESTORE: GO TO 1
9620 IF INKEY$="n" THEN GO TO 999
9630 GO TO 9500
9700 CLS: BEEP .05,40: BEEP .05,30: BEEP .05,50: BEEP .1,30: BEEP .1,40: BEEP .1,20: PRINT "YOU HAVE KILLED ALL THE MARTIAN TREE EATERS..WELL DONE..": BEEP .01,30: BEEP .01,30: BEEP .01,30: GO TO 9500

```



**U**SE THE CURSOR keys to climb the ladders, slide down the mine shafts and avoid the monsters, the escaped pit trucks, the rotting planks, and the mysterious moving wall. Collect the gold and the picks and then proceed to the bottom right-hand corner to move to the next level.

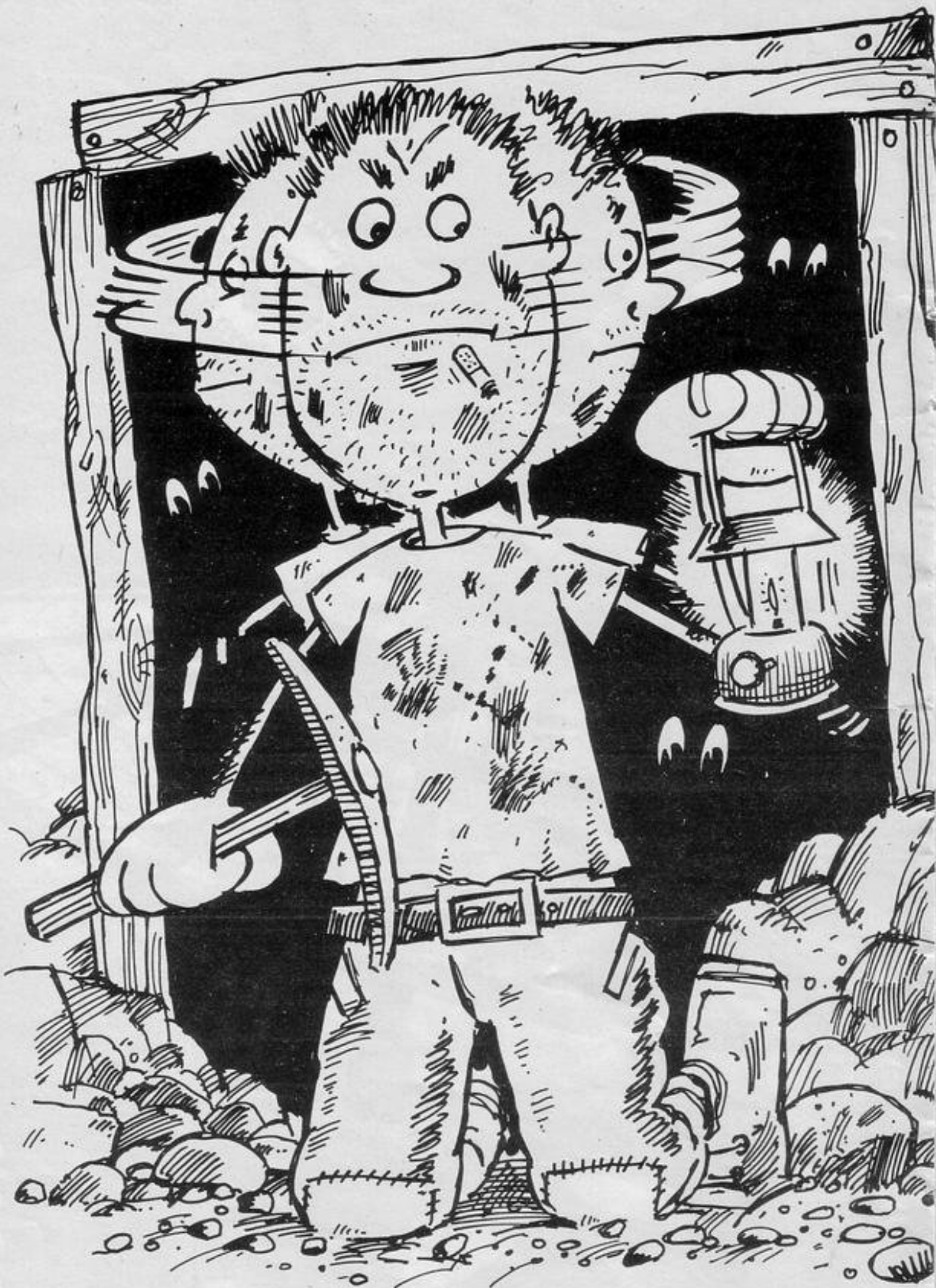
To enter, type-in the first program, RUN it, then type CLEAR. Type 'SAVE' "Builder" LINE 1', VERIFY it and then type NEW. Enter the second program, save it with SAVE "Builder" line 9999 and VERIFY it. **Builder** can then be LOADED as one program.

Written for the 16K Spectrum by Ian McNair of Kingston-upon-Thames, Surrey.

```

1 BORDER 1: PAPER 1: INK 7: C
LEAR: PRINT AT 10,9: FLASH 1: "P
LEASE WAIT"
10 DATA "A",187,187,0,238,238,
0,119,119
15 DATA "B",56,60,25,126,152,6
0,36,36
20 DATA "C",20,164,170,116,88,
92,124,56
25 DATA "E",0,112,28,48,120,12
4,60,24
30 DATA "F",0,255,171,213,255,
0,0,0
35 DATA "G",0,0,0,255,255,255,
126,60
40 DATA "H",66,126,66,66,66,12
6,66,66
45 DATA "I",76,88,120,120,88,7
6,64,64
50 DATA "L",126,62,14,6,6,14,6
2,126
55 DATA "U",30,6,2,0,0,2,6,30
100 FOR F=1 TO 10: RESTORE 5+5*
F: READ F$: FOR N=0 TO 7: READ A
: POKE USR F$+N,A: NEXT N: NEXT
F
110 BORDER 0: PAPER 0: INK 7: C
LEAR
120 LOAD ""
9998 REM FOR MAIN PROGRAM TYPE .
CLEAR: SAVE "BUILDER" LINE 99
99
9999 CLEAR: SAVE "BUILDER" LINE
1

```



# BUILDER



```

1 PAPER 0: BORDER 0: INK 3: C
LS: DIM z(6): DIM z$(6,10): FOR
f=1 TO 6: LET z(7-f)=100+100*f:
LET z$(f)="SPECTRUM": NEXT f
10 DIM o(2): DIM p(2): LET o(1)
)=13: LET p(1)=5: LET o(2)=8: LE
T p(2)=27: CLS: LET she=1: LET
s=0: FOR m=3 TO 1 STEP -1: CLS:
OVER 0: PRINT AT 5,5: "MEN: "m
": "AT 6,5: "SCORE: "s: "AT
7,5: "SHEETS: "she: "AT 1
0,4: "PRESS ANY KEY TO PLAY "
20 IF INKEY$<>" " THEN GO TO 2
0

```

```

30 IF INKEY$="" THEN GO TO 30
100 BORDER 0: INK 7: OVER 0: CL
S: PRINT #;TAB 9;"By Ian McN
air": BORDER 1: RESTORE 9990: RE
AD a: FOR f=1 TO a: READ b,c,g:
PRINT AT b,c: "g": FOR h=1 TO g: PR
INT INK 2;"a": NEXT h: NEXT f
101 INK 6: RESTORE 9992: READ a

```

```

: FOR f=1 TO a: READ b,c,g: FOR
h=1 TO g: PRINT AT b,c:"h": LET
b=b+1: NEXT h: NEXT f
102 INK 5: RESTORE 9994: READ a
: FOR f=1 TO a: READ b,c: PRINT
AT b,c:"e": NEXT f
103 INK 2: RESTORE 9996: READ a
: FOR f=1 TO a: READ b,c: PRINT
AT b,c:"a": NEXT f
104 INK 4: RESTORE 9998: READ a
: FOR f=1 TO a: READ b,c: PRINT
AT b,c:"i": NEXT f
109 FOR o=1 TO 2: PRINT AT o(o)
,p(o): OVER 1: INK 8:"c": NEXT o

```

```

: FOR f=3 TO 18: PRINT AT f,1:"
": NEXT f: FOR f=8 TO 17: PRINT
AT f,26:"I": NEXT f
110 INK 2: PLOT 0,0: DRAW 255,0
: DRAW 0,175: DRAW -255,0: DRAW
0,-175: LET bon=0: LET sta=4: LE
T axe=0: LET x=1: LET dr=0: LET
y=29: INK 5: PRINT AT x,y:"b":AT
21,14: INK 4:"MEN: "m: "SCORE: "
s
199 FOR f=19 TO 21: PRINT AT f,
30: INK 6:"h": NEXT f

```

```

200 FOR v=40 TO 0 STEP -2: PRIN
T AT 0,2: OVER 0:"TIME: "INT v:
": FOR f=14 TO 20: PRINT AT 19,
f: OVER 1: BRIGHT 1: INK 6:"g":A
T 16,-12+f:"g"
201 OVER 1: GO SUB 300: PRINT A
T 6,23:"BONUS: "bon:AT 7,23:"PIC
K9: "axe: IF INKEY$="0" THEN IF
ATTR(x,y)=5 THEN LET bon=bon+
10: PRINT OVER 1:AT x,y: INK 6:
"e"

```

```

202 IF INKEY$="0" THEN IF ATTR
(x,y)=4 THEN LET axe=axe+1: PR
INT OVER 1: INK 6:AT x,y:"i"
205 IF x=19 AND y=f OR x=16 AND
y=-12+f THEN GO TO 9690
252 GO SUB 9500: PRINT AT 16,-1
2+f: OVER 1: INK 6:"g":AT 19,f:"
g"

```

```

260 NEXT f: LET v=v-2: PRINT AT
0,2: OVER 0:"TIME: "INT v: "
FOR f=20 TO 14 STEP -1: PRINT AT
19,f: OVER 1: INK 7: BRIGHT 1:"
g":AT 16,-12+f:"g"

```

```

265 IF x=19 AND y=f OR x=16 AND
y=-12+f THEN GO TO 9690

```

```

289 OVER 1: GO SUB 300: PRINT A
T 6,23:"BONUS: "bon:AT 7,23:"PIC
K9: "axe: IF INKEY$="0" AND ATTR
(x,y)=5 THEN LET bon=bon+10: P
RINT OVER 1:AT x,y: INK 7:"e"
290 IF INKEY$="0" AND ATTR(x,y)
)=4 THEN LET axe=axe+1: PRINT
OVER 1:AT x,y: INK 7:"i"

```

```

299 PRINT AT 19,f: OVER 1: INK
6:"g":AT 16,-12+f:"g": GO SUB 95
00: NEXT f: NEXT v: GO TO 9690
300 PRINT AT x,y: BRIGHT 0: PAP
ER 8: INK 8:"b": LET x=x+1 AND
ATTR(x+1,y)=7: IF INKEY$="" TH
EN GO TO 310

```

```

301 LET x=x+(INKEY$="6" AND ATT
R(x+1,y)=6)-(INKEY$="7" AND ATT
R(x-1,y)=6): LET y=y+(INKEY$="8
" AND ATTR(x,y+1)<2)-(INKEY$="
5" AND ATTR(x,y-1)<2)

```

```

310 IF ATTR(x,y)<4 THEN GO TO
9690

```

```

311 IF (x=15 AND y=13) OR (x=15
AND y=18) THEN LET x=x+1
312 PRINT OVER 1:AT x,y: INK 8
: PAPER 8: BRIGHT 8:"b": OVER 0:
IF INKEY$="8" THEN IF x=19 THE
N IF y=29 THEN GO TO 9800

```

```

313 IF x=19 AND y=28 AND axe>0
THEN IF INKEY$="0" THEN LET ax
e=axe-1: GO SUB 9750

```

```

320 GO SUB 500: RETURN

```

```

500 FOR o=1 TO 2: LET di=RND: P
RINT AT o(o),p(o): OVER 1: INK 8
: BRIGHT 0:"c": LET o(o)=o(o)+(d
i)>.7 AND ATTR(o(o)+1,p(o))=6)-(
di<.45 AND ATTR(o(o)-1,p(o))=6)
501 LET p(o)=p(o)+(di)>.65 AND y
>p(o) AND ATTR(o(o),p(o)+1)<2)
-(di<.5 AND p(o)>y AND ATTR(o(
o),p(o)-1)<2): IF ATTR(o(o)+1,
p(o))=7 THEN LET o(o)=o(o)+1

```

```

550 PRINT AT o(o),p(o): OVER 1:
INK 8:"c": IF o(o)=x AND y=p(o)
THEN GO TO 9690

```

```

570 NEXT o: RETURN

```

```

9500 IF RND>.5 THEN RETURN

```

```

9505 OVER 0: LET rd=INT(RND*2)+
1: IF rd=2 THEN PRINT AT 9,25:
INK 3: BRIGHT 1:"f":AT 11,25:"f"
:AT 8,7:"f":AT 10,25: INK 7: BRI
GHT 0:"f":AT 15,13:"f":AT 14,13:
INK 3: BRIGHT 1:"f":AT 16,28:"f"
:AT 6,7:"f":AT 6,5: BRIGHT 0: I
NK 7:"f":AT 7,15:"f":AT 8,10:"f"
:AT 20,7:"f":AT 20,11: INK 2:"a"

```

```

9510 IF rd=1 THEN PRINT AT 9,25
: INK 7:"f":AT 11,25:"f":AT 8,7:
" "BRIGHT 1: INK 3:AT 10,25:"f"
:AT 15,13:"f": BRIGHT 0: INK 7:
AT 14,13:"f":AT 16,28:"f":AT 6,7
:" "INK 3: BRIGHT 1:AT 6,5:"f"
:AT 7,15:"f":AT 8,10:"f": INK 7:
BRIGHT 0:AT 20,11:"f":AT 20,7:

```

```

INK 2:"a"

```

```

9530 OVER 1: RETURN

```

```

9600 CLS: FOR f=1 TO 6: PRINT A
T 0+f*2,2:f:" "z(f):"By.."z$(
f): NEXT f: FOR f=1 TO 6: IF s<
z(f) THEN NEXT F

```

```

9601 IF F>6 THEN LET F=6

```

```

9602 IF S>Z(F) THEN GO TO 9640

```

```

9603 NEXT F

```

```

9604 FOR f=0 TO 400: NEXT f: GO
TO 9700

```

```

9640 LET FF=F

```

```

9641 IF S=Z(FF) THEN GO TO 9604

```

```

9650 PRINT AT FF*2,4: OVER 1: FL
ASH 1:" "INPU
T "NAME ....":z$(FF): IF LEN z$(
FF)>10 THEN GO TO 9650

```

```

9651 BEEP .5,0: LET z(FF)=s: GO
TO 9604

```

```

9690 PRINT AT x,y: FLASH 1: PAPE
R 2: INK 6:"b": FOR f=0 TO 100:
BEEP .05,50-f: NEXT f: BEEP .05,
-50: NEXT m

```

```

9700 OVER 0: PRINT AT 15,9: FLAS
H 1:"GAME OVER": FOR f=0 TO 40
9700 OVER 0: PRINT AT 15,9: FLAS
H 1:"GAME OVER": FOR f=0 TO 40

```

```

0: NEXT f: PRINT AT 17,6:"PRESS
": "AT 19,6:"P...PLAY: "AT 2
0,6:"A...ABANDON: "AT 21,6:"S
...SCORE TABLE": PAUSE 0: PAUSE
0: IF INKEY$="a" OR INKEY$="s" T
HEN GO TO 9600

```

```

9701 PAUSE 0: LET a$=INKEY$: IF
a$="p" OR a$="P" THEN GO TO 10
9702 IF a$="a" OR a$="A" THEN R
ANDOMIZE USR 0

```

```

9703 IF a$="s" OR a$="S" THEN G
O TO 9600

```

```

9710 GO TO 9701

```

```

9750 IF sta=4 THEN PRINT AT 19,
29:"l"

```

```

9753 IF sta=3 THEN PRINT AT 19,
29:"u"

```

```

9754 IF sta=2 THEN PRINT AT 19,
29:"_"

```

```

9755 IF sta=1 THEN PRINT AT 19,
29:" "

```

```

9756 LET sta=sta-1: RETURN

```

```

9800 OVER 0: FOR f=6 TO 15: PRIN
T AT f,6:" "NEXT
f: OVER 1: FOR f=7 TO 0 STEP -.
4: BORDER f: BEEP .15,f: PRINT A
T 10,7:"WELL DONE "AT 13,7:
" BONUS: "bon: NEXT f: LET s=s+
bon*2: OVER 0: PRINT AT 7,8: FLA
SH 1:"SCORE: "s: FOR f=-50 TO
50: BEEP .05,f: NEXT f: LET she=
she+1

```

```

9810 DATA 1,0,0,1,0,1: RESTORE 9
815: FOR f=1 TO 3: BEEP .2,1: PR
INT OVER 1:AT x,y: INK 8:"b": R
EAD n,m: LET y=y+n: LET x=x+m: P
RINT OVER 1: INK 8:AT x,y:"b":
BEEP .3,f: NEXT f

```

```

9820 GO TO 20

```

```

9990 DATA 20,7,16,5,11,4,8,10,5,
5,13,0,13,12,27,5,11,14,12,13,19
,7,15,19,3,16,22,9,19,0,13,18,18
,14,17,0,19,15,0,17,20,14,50,4,2
2,10,9,20,12,4,0,18,2,26,6,6,1,1
3,8,1,13

```

```

9991 REM

```

```

9992 DATA 19,19,23,2,16,16,4,18,
3,3,18,13,3,14,19,4,16,8,3,15,6,
2,13,29,3,11,27,5,12,22,4,9,8,4,
10,12,3,5,14,6,3,6,3,7,2,6,3,21,
6,3,18,4,8,30,4,1,25,3

```

```

9993 REM

```

```

9994 DATA 12,3,28,20,2,20,6,20,9
,20,12,7,3,9,6,10,10,8,28,10,21,
10,23,14,7

```

```

9995 REM

```

```

9996 DATA 4,3,23,16,18,19,29,19,
31

```

```

9997 REM

```

```

9998 DATA 4,3,2,7,6,12,19,13,28

```

```

9999 BORDER 0: PAPER 0: INK 5: C
LS: FOR f=0 TO 40: BEEP .009,f:
BEEP .009,f+5: NEXT f: RUN

```

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2 extracts from *ZX Computing*, Oct/Nov '82

"Eight games, including an excellent version of the Scramble arcade game . . . Easy to operate, graphically impressive and good value for money."

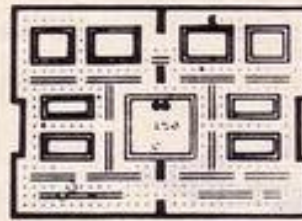
*The Times*, Saturday 11th December 1982 (about Cassette 4)

## NEW! FOR 16K SPECTRUM

(will also run on 48K Spectrum)

CASSETTE A

Ten programs for £6



**GHOST GOBBLER**  
Eat the ghosts before the ghosts eat you. Eat a star and you can chase the ghosts for a while.

**ALIENKILL** Control lasers, rockets and a force-field to stop the aliens from landing.

**MOUSETRAP** Trap the mouse in the corner but not anywhere else.

**REVERSI** A game of skill with simple rules but sophisticated tactics. Play against the computer.

**LASER DEFENCE** Control the laser sight to shoot down the alien ships. Machine code sound routines.

**TANK BATTLE** For 2 players simultaneously or play against the computer. Each player has 2 rotate controls and move and fire controls. The tanks fire steerable missiles.

**PHOEBUS** A puzzle.

**BLACKSPOT** Gobble the stars and avoid running into black spots created by crossing your own path.

**CUBE** Manipulate a cube any size from  $2 \times 2 \times 2$  to  $7 \times 7 \times 7$ .

**MINEFIELD** Collect the crowns while avoiding the mines and the electrified fence.

plus an extra . . .

**GRAPHIC DEMO** Did you know your Spectrum could do all this!?

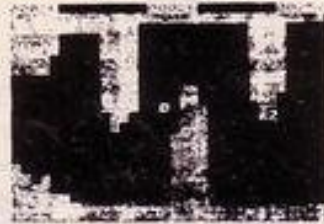
**CASSETTE 1**, eleven programs (including 7 in machine code) for 1K ZX81 £3.80

**CASSETTE 2**, ten games in Basic for 16K ZX81 £5

**CASSETTE 3**, eight programs (including 1 in machine code) for 16K ZX81 £5

**CASSETTE 4** 8 games for 16k ZX81 £6

**ZX-SCRAMBLE** (machine code) with 3 stages. Bomb and shoot your way through the fortified caves.



**GUNFIGHT** (machine code)



**INVADERS** (machine code)



**FUNGALOID**  
THE FUNGALOID IS GROWING AND WHEN THEY REACH THE SKY THEY PRODUCE DEADLY SPORES. YOU CONTROL A FLYER AND YOUR MISSION IS TO DESTROY THE FUNGALOID BY DROPPING ANTI-FUNGUS BOMBS ON THEM.



**GALAXY INVADERS** (machine code)

Fleets of swooping and diving alien craft to fight off.

**SNAKEBITE** (machine code)

Eat the snake before it eats you. Variable speed. (very fast at top speed).

**LIFE** (machine code)

A ZX81 version of the well known game.

**3D TIC-TAC-TOE** (Basic)

Played on a  $4 \times 4 \times 4$  board, this is a game for the brain. It is very hard to beat the computer at it.

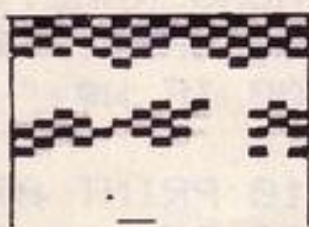
7 of the 8 games are in machine code, because this is much faster than Basic. (Some of these games were previously available from J. Steadman).

**CASSETTE 5** 8 games for 16k ZX81 £6

**BYTE-MAN** (machine code) (previously available from Mindseye)



**BREAKOUT** (machine code)



**PLANETOIDS** (machine code)

Rotate, move, fire and hyperspace controls. Wide range of choice of speed and difficulty.

**DODGEMS** (machine code)

Dodge the computer's car while eating the dots.

**DRAUGHTS** (machine code)

Three skill levels.

**MERCHANT** (Basic)

Make your fortune on trading voyages in the Mediterranean and beyond.

**SPACE RESCUE** (machine code) (previously available from Mindseye)



**BLITZ** (machine code)



7 of the 8 games are in machine code because it is much faster than Basic.

"New polish on old favourites . . . the quality of the software and the smooth action displays created on the screen make the programs worthwhile for anyone who has a ZX-81 and plays games using it.

Most of the games include well-presented instructions which make them easier to play. It is pleasant to see that Orwin's kind of quality is available again."

From review of Cassette 5 in *Sinclair User*, September 1983.



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# BMX

**B**ECOME a fully-fledged **BMX Rider** in Ian Drake's program for the 48K Spectrum. The game requires skill, as you must judge the correct speed to jump to clear the ramps as they appear before you.

# RIDER

```

100 CLS
110 PRINT AT 0,10;"(9a: BMX:9d)"
"
120 PRINT AT 2,0;" The object o
f the game is to jump 7 death
defining ramps. You control your
BMX with keys '8' to go right
and increase your speed by 2 a
nd '5' to go left and decrease
your speed by 1. You must hit
the ramp at the right speed
to clear it. Each time you cle
ar it the ramp increases in
length. If you clear all 7
ramps you become a BMX rider. Go
od luck!!!"
130 PRINT AT 10,2;"Press any ke
y to start"
240 PAUSE 0
1001 CLS
1005 LET s=10
1010 LET j=1
1015 LET sc=0
1025 PRINT AT 0,0; FLASH 1;"SPEE
D:";s
1030 PRINT AT 0,12; FLASH 1;"SCO
RE:";sc
1035 PRINT AT 0,22; FLASH 1;"JUM
P:";j
1045 PLOT 0,95: DRAW 255,0
1050 PLOT 0,94: DRAW 255,0
1060 LET b#="(9b:93:9c)"
1065 PRINT AT 9,15;b#
1070 PAUSE 50: BEEP .00,10: BEEP
.01,-2: BEEP .5,3: BEEP .00,10
2005 LET a=0
2010 LET b=9
2015 LET a#="(9a)" : IF INKEY#="
5" THEN LET a#="(9d)"
2020 LET a=a+(INKEY#="8" AND a<2
9)-(INKEY#="5" AND a>0)
2025 PRINT AT b,a;a#
2035 IF INKEY#="8" THEN LET s=s
+2: IF s>99 THEN LET s=99
2040 IF INKEY#="5" THEN LET s=s
-1: IF s<10 THEN LET s=10
2045 PRINT AT 0,0; FLASH 1;"SPEE
D:";s
2050 IF j=1 THEN GO TO 6000
2055 IF j=2 THEN GO TO 6000
2060 IF j=3 THEN GO TO 6000
2065 IF j=4 THEN GO TO 6000
2070 IF j=5 THEN GO TO 6000
2075 IF j=6 THEN GO TO 6000
2080 IF j=7 THEN GO TO 6000
2100 GO TO 2015
3005 PRINT AT b,a;" "
3010 LET b=b+1: LET a=a+1
3015 PRINT AT b,a;a#
3020 FOR a=14 TO j+16
3025 PRINT AT b,a;a# PAUSE 3
3030 NEXT a
3035 PRINT AT b,a;" "
3040 LET b=9
3045 PRINT AT b,a;a#
3050 LET j=j+1: LET sc=sc+10: LE
T s=10
3055 PRINT AT 0,22; FLASH 1;"JUM
P:";j: PRINT AT 0,12; FLASH 1;"S
CORE:";sc
3060 IF j=2 THEN LET b#="(9a:2*
93:9c)"
3065 IF j=3 THEN LET b#="(9b:3*
93:9c)"
3070 IF j=4 THEN LET b#="(9b:4*
93:9c)"
3075 IF j=5 THEN LET b#="(9b:5*
93:9c)"

```

```

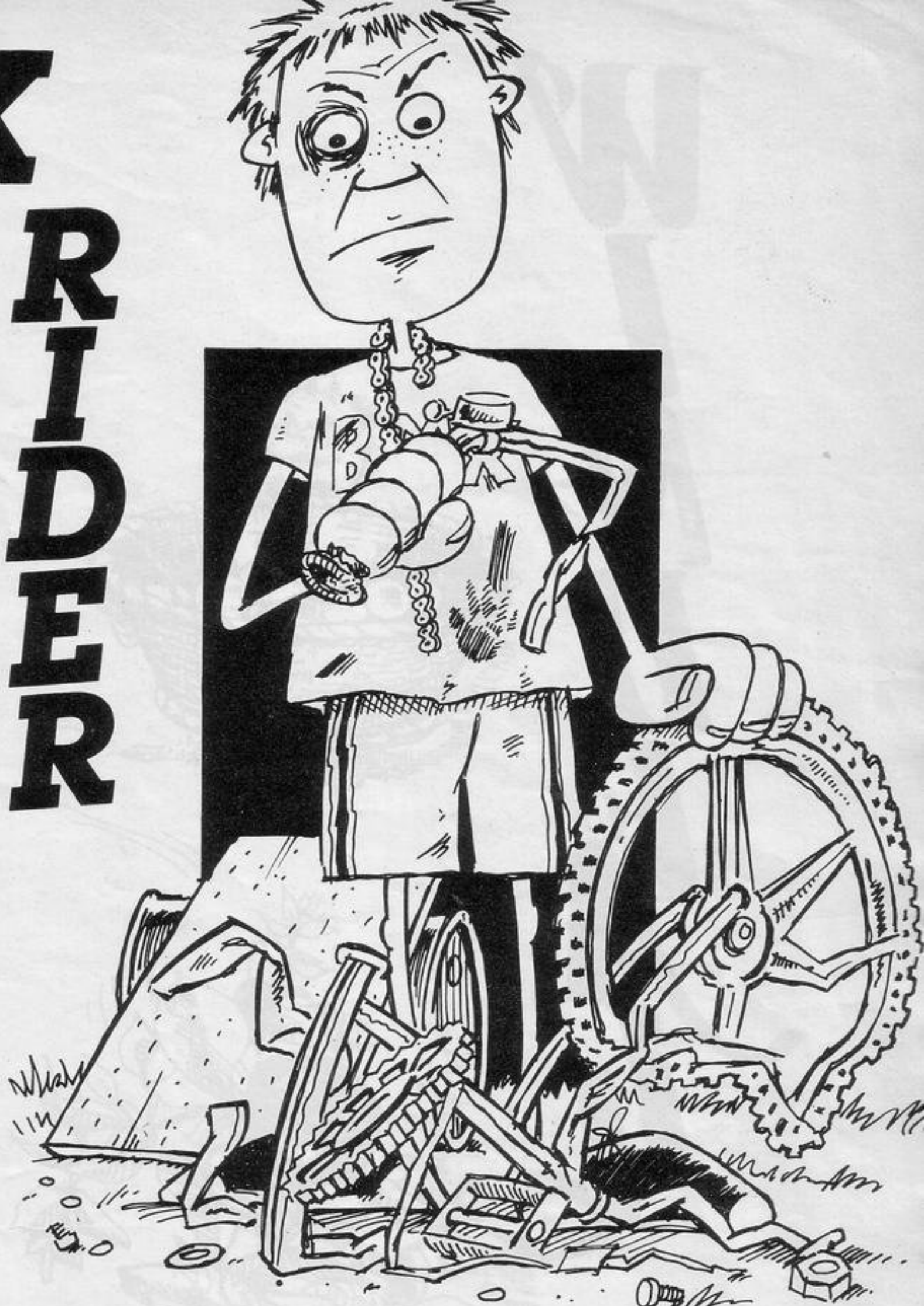
3080 IF j=6 THEN LET b#="(9b:6*9
3:9c)"
3085 IF j=7 THEN LET b#="(9b:7*
93:9c)"
3086 IF j=8 THEN GO TO 8000
3095 PRINT AT b,a;" "
3100 GO TO 1065
4005 PRINT AT b,a;" "
4010 LET b=8
4015 LET a=a+1
4020 PRINT AT b,a;a#
4025 FOR a=14 TO 15
4030 PRINT AT b,a;a# PAUSE 10
4035 NEXT a
4040 PRINT AT b,a;" "
4045 LET b=9
4050 PRINT AT b,a;"(9a)"
4055 PAUSE 50
4060 GO TO 7000
6000 IF a=12 AND s<=sc+32 OR a=1
2 AND s>=sc+40 THEN GO TO 4000
6005 IF a=12 AND s>=sc+40 OR a=1
2 AND s<=sc+50 THEN GO TO 3000
6010 GO TO 2015
7005 CLS
7015 FOR a=1 TO 9

```

```

7020 PRINT AT 3,a;" (9a: YOU CRAS
HED:9d)" : PAUSE 10
7025 NEXT a
7030 PRINT AT 9,10;"YOU SCORED:"
;sc
7040 PRINT AT 15,1;"PRESS ANY KE
Y FOR ANOTHER GAME"
7050 PAUSE 0
7060 RUN
8005 CLS
8010 PRINT AT 5,1;"YOU HAVE JUMP
ED ALL THE RAMPS YOU ARE NO
W A BMX RIDER WELL
DONE!!!"
8020 GO TO 7030
9000 FOR z=USR "a" TO USR "d"+7
9010 READ user: POKE z,user
9020 NEXT z
9030 DATA 40,56,48,127,110,153,1
53,102
9040 DATA 0,0,7,15,31,63,127,255
9050 DATA 0,0,224,240,248,252,25
4,255
9060 DATA 12,20,12,254,110,153,1
53,102
9070 RETURN

```





# BUSINESS MAN

```

3 REM "BUSINESS MAN"
4 LET SC=0
5 CLS
10 PRINT "BUSINESS MAN"
20 PRINT "AT 5,0;"
30 PRINT "AT 6,0;"
40 PRINT "AT 7,0;"
50 PRINT "AT 8,0;"
60 PRINT "RRRING"
70 PRINT "WHICH PHONE?"
80 LET A=INT (RND*4)+1
90 LET B=INT (RND*1000)+1
100 INPUT P
110 IF P<1 OR P>4 THEN GOTO 7
120 IF A=1 THEN PRINT "YOU HAVE INHERITED £";B
130 IF A=2 THEN LET SC=SC+B
140 IF A=3 THEN PRINT "YOUR SHARES HAVE RISEN."
150 IF A=4 THEN LET SC=SC-B
160 IF A=3 THEN PRINT "YOUR FIRM HAS GONE BUST."
170 IF A=3 THEN GOTO 205
180 IF A=4 THEN PRINT "YOU HAVE JUST BEEN DIDDLED OUT OF £";B
190 IF A=4 THEN LET SC=SC-B
195 PAUSE 150
200 GOTO 7
205 CLS
210 PRINT "BAD LUCK"
220 PRINT "YOU MANAGED £";SC
230 PRINT "ANOTHER GO (Y/N)?"
240 INPUT AS$
250 IF AS$="Y" THEN RUN
270 STOP

```



**F**OUR TELEPHONES appear on the screen and when one of them rings you have to guess which it is and answer it. If you choose the wrong telephone your firm will become bankrupt or be swindled by a client. If you answer the correct telephone your

shares will rise or you will learn of an inheritance. The object is to try to raise as much money as possible before being made bankrupt.

**Business Man** was written for the 1K ZX-81 by David Hindon and Martin Bowell, of Swindon, Wilts.

# SUN KING



**M**OVE your laser base left and right with keys "6" and "7" and catapult missiles into space using "0". You must fire at the **Sun King** as it passes and attempt to reach as high a score as possible before you run out of laser power and the Sun King wins again.

Written for the 16K Spectrum by Christopher Powton of Shildon, Co. Durham.

```

1 LET SC=0
10 PAPER 2: INK 6: CLS
15 FOR f=USR "a" TO USR "f"+
7: READ a: POKE f,a: NEXT f
20 DATA 8,20,36,72,68,69,196,1
98
30 DATA 15,24,51,102,102,51,24
,15
40 DATA 240,24,208,102,102,208
,24,240
50 DATA 0,24,60,126,24,60,60,6
0
60 DATA 126,24,24,24,24,60,102
70 DATA 0,0,24,24,24,60,36,0,0
75 FOR f=1 TO 30: PLOT INK 6:
INT (RND *200), INT (RND *150

```

```

): NEXT f
76 CIRCLE 175,125,10
80 LET laser=20: LET pos=15: L
ET v=0
90 PRINT AT 20,pos: INK 0;" D
": PRINT AT 21,pos: INK 0;" E
"
100 PRINT AT 10,v: INK 6;" BC
"
101 IF v >= 29 THEN PRINT AT
10,v;" ": LET v=0: LET laser=l
aser-1: GO TO 100
110 IF INKEY$="6" THEN LET p
os=pos-1: BEEP .005,pos
112 PRINT AT 0,10;"SCORE = ";s
c
120 IF INKEY$="7" THEN LET p
os=pos+1: BEEP .005,pos

```

```

130 IF pos <= 1 THEN LET pos=1
140 IF pos >= 27 THEN LET pos=
27
150 IF INKEY$="0" THEN FOR f
=19 TO 10 STEP -1: PRINT AT f,p
os+1;"F": BEEP .005,f: BEEP .005
,f*pos/v/laser: BEEP .005,laser:
PRINT AT f,pos+1;" ": NEXT f:
IF f=9 AND pos=v+1 OR f=9 AND po
s=v THEN LET SC=SC+10: BEEP .1,
5: PRINT AT 10,v;" ": LET v=0
: GO TO 100
160 IF laser <= 0 THEN PRINT "
THE SUN KING WINS AGAIN !!!!!":
PAUSE 0: PAUSE 0: CLS: RUN
170 IF SC>1000 THEN PRINT "YOU
WIN CONTROLL OVER THE SUN": FOR
f=1 TO 5: BEEP .1,f: NEXT f: PA
USE 0: PAUSE 0: CLS: RUN
200 LET v=v+1
2000 GO TO 90

```





THE MAJORITY of microcomputer owners aim to provide their computers with as much memory as possible. Six months after buying his ZX-81, David Aubrey-Jones of Burley, Leeds removed the RAM pack and set himself the challenge of writing a mappable adventure game.

The result was **Haunted Dungeon** and some memory-saving techniques which allowed him to write other adventures on a 1K ZX-81. Since then he has bought a Spectrum and begun writing machine code games, the latest of which, **Supertalk**, allows the Spectrum to read sentences and to learn words. It has just been marketed by Abbex.

To play the game you must first give values to some variables:

```
LET I=1
LET F=5
LET X=6
LET T=10
LET H=100
```

The game should then be started by ENTERing GOTO 1.

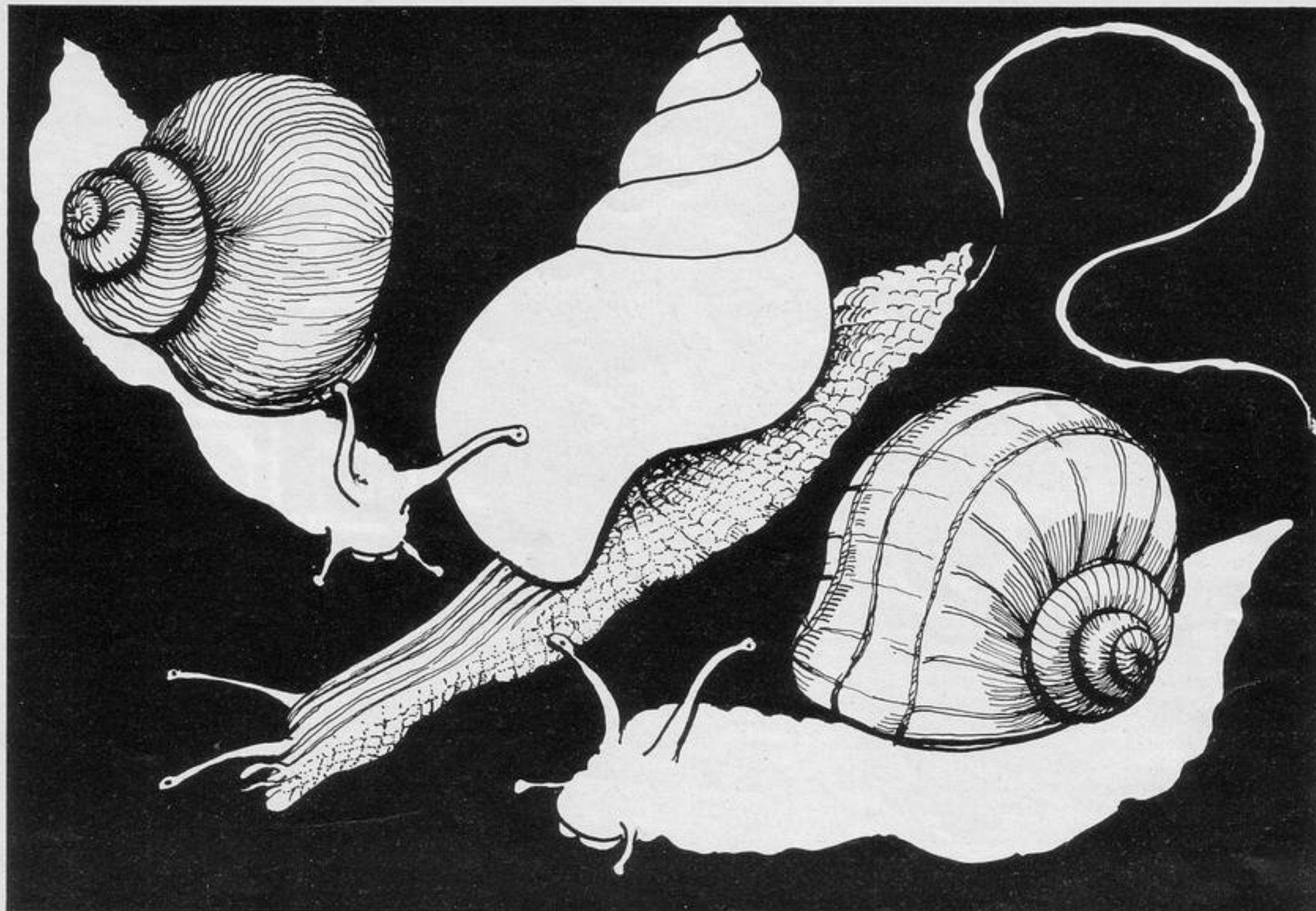
You enter the dungeon down some steps with an initial strength of 20. Your object is to find the treasure and return to the steps without your strength falling below 1. Enter N, S, E or W to move in different directions. You may find your way barred by a wall, have your strength sapped by a monster, or increased by finding food. Divining rods point to the treasure; 1 indicates that they are pointing south and -1 that they are pointing north.

# HAUNTED DUNGEON

```
25 LET A=INT (RND*H*H)
30 LET B=A+H
35 LET G=INT (A+RND*H)
40 IF G/F=INT (G/F) OR A/F=INT
(A/F) THEN GOTO T
45 LET S=T+T
50 LET P=A
52 PRINT "(99)steps"
53 IF NOT G THEN PRINT "AND RI
CH...E")A)Y
55 IF S>T+T THEN LET S=T+T
60 PRINT S
65 LET Q=P
70 INPUT M#
80 LET P=P+(M#="E")+ (M#="S")*F
-(M#="W")-(M#="N")*F
100 IF P<>Q AND P>=A AND P<=B A
ND P/F<>INT (P/F) THEN GOTO H+T+
T
105 LET P=Q
110 PRINT "███"
```

```
115 GOTO CODE "PI"
120 CLS
125 PRINT ("%%%" AND P=G)
130 LET G=G*(P<>G)
140 IF P=A THEN GOTO CODE "H"
160 RAND P
165 LET R=T**F*RND
170 LET R=INT ((R-INT R)*T)
180 LET S=S-I+T*(R=F)-INT (RND*
T*(R<=I))
190 LET P=P+INT (RND*T*(R=I+I)*
(P+T<=B))
210 PRINT ("ghost" AND NOT R)+(
"dragon" AND R=I)+( "giant bat")
AND R=I+I)+( "ITS dark AND WET" A
ND R>X)
220 IF R>X THEN PRINT "DIVINING
ROD=")SGN (G-P)
240 IF S>=I THEN GOTO CODE "R"
250 PRINT "R.I.P"
```





THERE HAVE been requests for two-player games. William Hoyland of Surbiton, Surrey has supplied one such game for the 16K ZX-81.

Player one attempts to move the snail

from the left of the screen to the right, while the snail of player two attempts to cross from right to left.

Both players must avoid the deadly slug pellets and the slimy snail trail of the other.

# SNAIL TRAIL

```

15 GOSUB 5000
20 LET A=10
30 LET B=10
40 LET S1=0
50 LET S2=0
60 DIM A$(20,30)
70 FOR Z=1 TO 30+S1+S2
80 LET X=INT (RND*19)+1
90 LET Y=INT (RND*20)+5
100 PRINT AT X,Y;"(91)"
110 LET A$(X,Y)="(91)"
120 NEXT Z
130 LET D=1
140 LET E=30
150 PRINT AT A,D;"0"
155 PRINT AT B,E;"*"
160 LET A$(A,D)="0"
165 LET A$(B,E)="*"
170 LET C=PEEK 16421
180 LET B=B-((C=223 OR C=219 OR C=221) AND B-1>0)+((C=191 OR C=187 OR C=189) AND B+1<21)
190 LET A=A-((C=251 OR C=219 OR C=187) AND A-1>0)+((C=253 OR C=221 OR C=189) AND A+1<21)
200 LET D=D+1
210 LET E=E-1
215 IF D=31 THEN GOTO 3000
217 IF A$(A,D)<>" " AND A$(B,E)<>" " THEN GOTO 3000
220 IF A$(A,D)<>" " THEN GOTO 1000
230 IF A$(B,E)<>" " THEN GOTO 2000
240 PRINT AT A,D;">"
250 PRINT AT B,E;"<"
260 GOTO 150
1000 FOR Z=1 TO 20
1010 PRINT AT A,D;"(<1>)"
1020 PRINT AT A,D;">"
1030 NEXT Z
1035 CLS

```

```

1040 PRINT "THE GOOD LOOKING ONE ON THE RIGHT WINS.",,,,
1050 LET S2=S2+1
1070 PRINT "<--";S1;TAB 29-LEN (STR$ S2);S2;"-->"
1075 IF S2=10 THEN GOTO 6000
1077 PRINT AT 10,10;"TOUCH A KEY"
1080 IF INKEY$="" THEN GOTO 1000
1090 CLS
1100 GOTO 60
2000 FOR Z=1 TO 20
2010 PRINT AT B,E;"(<1>)"
2020 PRINT AT B,E;"<"
2030 NEXT Z
2040 CLS
2050 PRINT "THE GOOD LOOKING ONE ON THE LEFT WINS.",,,,
2060 LET S1=S1+1
2070 PRINT "<--";S1;TAB 29-LEN (STR$ S2);S2;"-->"
2075 IF S1=10 THEN GOTO 6000
2077 PRINT AT 10,10;"TOUCH A KEY"
2080 IF INKEY$="" THEN GOTO 2000
2090 CLS
2100 GOTO 60
3000 CLS
3010 PRINT TAB 6;"NOBODY WINS GE EKS",,,,
3020 GOTO 2070
4000 SAVE "SNAIL TRAIL"
4010 RUN
5000 LET B$="**TOUCH*A*KEY**"
*****HI. THE FOLLOWING GAME IS CALLED SNAIL TRAIL AND IT REQUIRES TWO PLAYERS TO NAVIGATE THEIR SPEEDY SNAILS ACROSS AN AREA OF LETHAL SLUG PELLETS WHILE AVOIDING THEIR OPPONENTS DEADLY TRAILS.PLAYER ONE USES THE KEYS Q AND A TO MOVE UP AND DOWN.

```

PLAYER TWO USES KEYS O AND L.\*\*\*  
\*\*\*\*\*GOOD LUCK\*\*\*\*\*

```

5010 PRINT AT 9,7;"(98:16*99:95)"
"AT 10,7;"(98)**TOUCH*A*KEY**"(95)"
AT 11,7;"(98:16*9f:95)"

```

```

5020 IF INKEY$="" THEN GOTO 5020
5030 FOR A=1 TO LEN B$-15
5040 PRINT AT 10,8;B$(A TO A+15)
5050 FOR B=1 TO 3
5060 NEXT B
5070 NEXT A
5080 FOR A=1 TO 100
5090 NEXT A
5100 CLS
5110 RETURN
6000 PRINT
6010 PRINT "AND THE OVERALL WINNER",,,,
6020 PRINT "WITH AN INCREDIBLE LEAD OF "

```

```

6030 IF S1>S2 THEN PRINT S1-S2
6040 IF S2>S1 THEN PRINT S2-S1
6050 PRINT
6060 PRINT "IS..."
6070 PRINT
6080 PRINT "THE DEVILISHLY FIENDISH..."
6090 PRINT

```

```

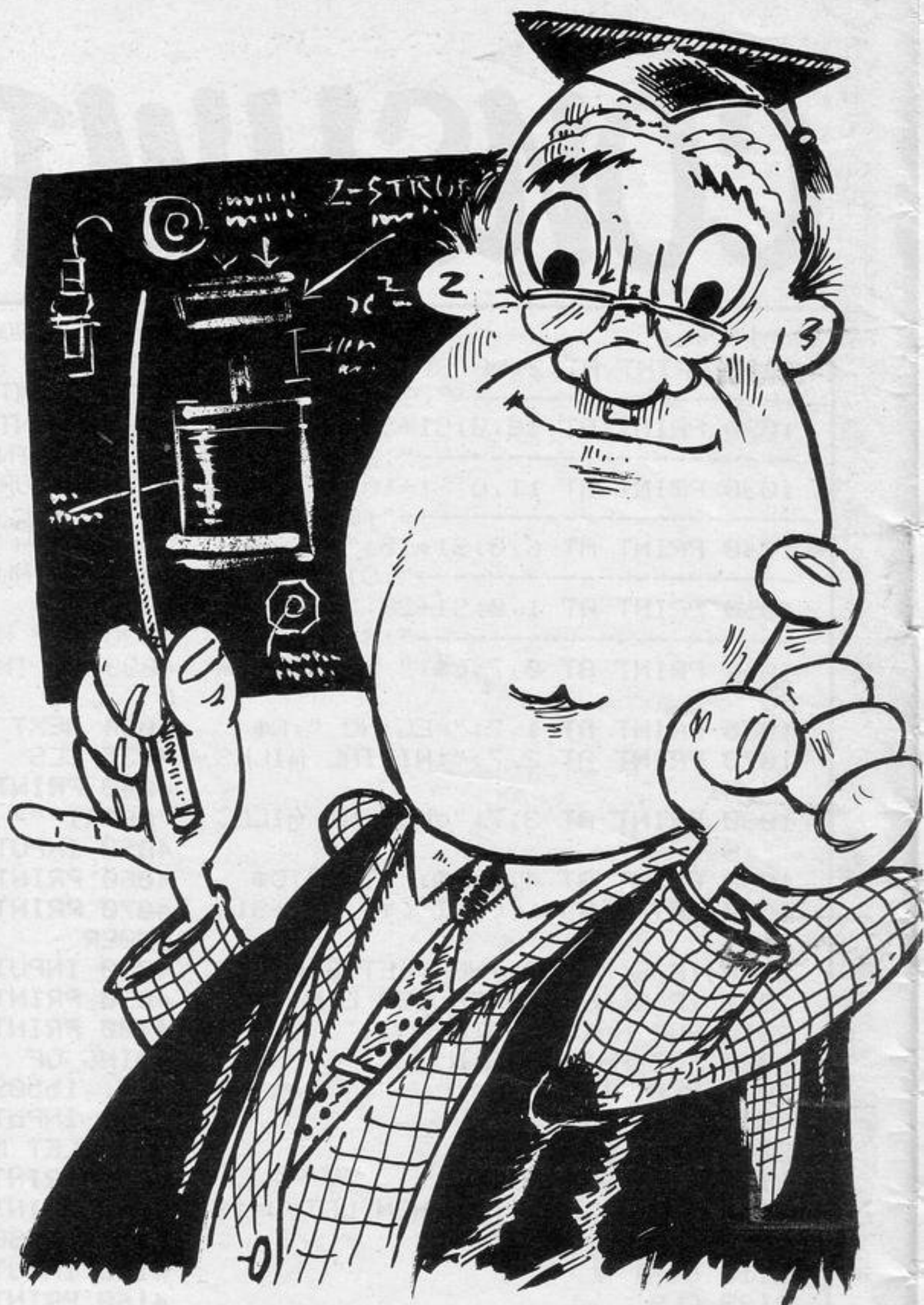
6100 IF S2>S1 THEN PRINT "PLAYER ON THE RIGHT"
6110 IF S1>S2 THEN PRINT "PLAYER ON THE LEFT"
6120 PRINT
6130 PRINT " TOUCH A KEY TO PLAY AGAIN"
6140 IF INKEY$="" THEN GOTO 6140
6150 CLS
6160 RUN

```



# TWO-STROKE ENGINE

**T**HIS EDUCATIONAL program, **Two-stroke Engine**, was designed for the 16K Spectrum by Tim Rose of Woolwich, London. For those interested in simple physics it describes, with working diagrams, the action of a two-stroke engine. It would be useful as a demonstration program for teaching, or for students struggling to reproduce diagrams.



```
10 GO SUB 290: BORDER 0: PAPER
0: INK 6: CLS
20 CIRCLE 125,39,24
30 PRINT AT 20,0:"Two Stroke"
"Engine by Tim Rose 10/2/1983"
40 PLOT 102,160: DRAW 0,-50: D
RAW -12,-15: DRAW 0,-50: DRAW 70
,0,PI: DRAW 0,30: DRAW -8,5: DRA
W 15,0: PLOT PEEK 23677,PEEK 236
70+12
50 DRAW -15,0: DRAW 0,4: DRAW
15,0: PLOT PEEK 23677,PEEK 23678
+12: DRAW -15,0: DRAW 0,53: DRAW
-50,0,2: PLOT 100,90: DRAW 0,-3
5: DRAW -1,0: DRAW 0,35
60 PRINT AT 0,14: INK 7: BRIGHT
1:"3"
70 FOR a=(2*PI)-PI/6 TO 0 STEP
-PI/6
80 FOR z=0 TO 1
90 LET b=126+20*COS a: LET c=3
9+20*SIN a
100 PLOT OVER 1:b,c: DRAW OVER
1:126-b,45
110 LET d=c+45
120 OVER 1: PLOT 105,d: DRAW 44
,0: DRAW 0,20: DRAW -32,10: DRAW
-13,-10: DRAW 0,-20: OVER 0
```

```
130 IF INT c=59 THEN GO SUB 021
0
140 IF INT c=56 AND b>126 THEN
PRINT AT 0,0:"Power" "AT 1,
14:" "AT 2,13:" "AT 3,
13:"
150 IF INT c=21 AND b>126 THEN
GO SUB 0230
160 IF INT c=30 AND b<126 THEN
PRINT AT 0,0:"Compression"
170 IF INT c=40 AND INT b<126 T
HEN GO SUB 0280
180 IF (INKEY#="c" OR INKEY#="C"
") AND z=0 THEN COPY
190 IF (INKEY#="s" OR INKEY#="S"
") AND z=0 THEN GO TO 190
200 NEXT z: NEXT a: GO TO 70
210 PRINT AT 0,0:"Ignition"
"AT 1,14: INK 2: BRIGHT 1:"bbbb"
"AT 2,13:"bbbbbb"AT 2,13:"bbbbbb
b"AT 3,13:"bbbbbb": IF z=0 THEN
FOR x=0 TO 10: BEEP 0.01,10: BE
EP 0.01,20: NEXT x
220 RETURN
230 PRINT AT 0,0:"" "OVE
R 1: PLOT 134,122: DRAW 20,-20,P
1/2: PLOT 155,102: DRAW 16,0: PL
OT 166,106: DRAW 5,-4: DRAW -5,-
```

```
4: PRINT AT 9,22:"Exhaust":AT 10
,24:"Out"
240 PRINT AT 9,0:"Fuel forced":
AT 10,5:"up": PLOT 96,40: DRAW 0
,55: DRAW 20,22: DRAW -5,0: POKE
23677,PEEK 23677+5: DRAW 0,-5:
OVER 0
250 IF z=0 THEN FOR x=1 TO 100:
IF INKEY#="c" OR INKEY#="C" THE
N COPY
260 IF z=0 THEN NEXT x
270 RETURN
280 OVER 1: PLOT 160,85: DRAW -
12,0: DRAW -5,-20: DRAW -4,5: PO
KE 23677,PEEK 23677+11: DRAW -6,
-5: PRINT AT 11,21:"Fuel sucked"
"AT 12,25:"in": OVER 0: GO TO 25
0
290 RESTORE 300: FOR x=0 TO 14:
READ y: POKE USR "a"+x,y: NEXT
x: RETURN
300 DATA BIN 00001110,BIN 00001
110,BIN 00011111,BIN 00011111,32
,BIN 11001110,BIN 00000100,BIN 0
0001100,BIN 01011010,0,BIN 10101
001,0,BIN 01001010,0,BIN 0010010
0,0
310 SAVE "2 Stroke" LINE 1
```





```

10 PRINT AT 3,12;"JAWS"
15 PRINT AT 4,12;"===="
20 PRINT AT 7,0;"TRY TO HELP T
HE FISH ESCAPE FROM"
25 PRINT "THE SHARK BY GETTING
THE ANSWERS"
30 PRINT "RIGHT."
35 PRINT AT 12,0;"AT THE END P
RESS Y AND NEWLINE"
40 PRINT "TO PLAY THE GAME AGA
IN."
45 PRINT AT 16,0;"PRESS ANY KE
Y TO START."
50 IF INKEY$="" THEN GOTO 50
100 CLS
105 LET W=0
110 LET F=0
120 LET X=0
130 PRINT AT 20,0;"(9a'9d'9a'9d
9a'9d'9a'9d'9a'9d'9a'9d'9a'9d'9a
'9d'9a'9d'9a'9d'9a'9d'9a'9d'9a'9
d'9a'9d'9a'9d'9a'9d)"
140 PRINT AT 16,30;"Y"
150 PRINT AT 17,30;"Y"
160 PRINT AT 18,20;"Y Y"
170 PRINT AT 19,28;"Y Y"
180 GOSUB 600
190 GOSUB 700
200 RAND
210 LET A=INT (RND*11)
220 LET B=INT (RND*11)
230 IF X=0 THEN GOTO 800
235 GOSUB 900
240 PRINT AT 4,5;"WHAT IS ",A,"
+",B
250 INPUT ANSWER
260 PAUSE 40
270 PRINT TAB 13;A,"+",B,"=";AN
SWER
280 IF ANSWER=A+B THEN GOTO 400
300 PRINT TAB 13;"WRONG.TRY AGA
IN."
310 FOR Z=15 TO 18
320 PRINT AT 2,W;"      "
330 NEXT Z
340 LET W=W+6
350 GOSUB 600
360 IF F=W+2 THEN GOTO 480
370 GOTO 235
400 PRINT TAB 13;"RIGHT.WELL DO
NE."
410 PRINT AT 16,F;"      "
420 PRINT AT 17,F;"      "
430 LET F=F+6
440 GOSUB 700
450 IF F=26 THEN GOTO 540
460 GOTO 210
480 PRINT AT 10,0;"SORRY.YOUR F
ISH HAS BEEN EATEN."
490 GOTO 550
540 PRINT AT 10,0;"CLEVER YOU.T
HE FISH HAS ESCAPED."
550 PRINT AT 12,0;"DO YOU WANT
TO PLAY AGAIN?Y OR N"
560 INPUT R$
570 IF R$="Y" THEN GOTO 100

580 CLS
585 PRINT AT 10,12;"GOODBYE."
590 STOP
600 PRINT AT 15,W;"(9a' 4*9a)"
610 PRINT AT 16,W;"(4*9a'10'9a)"
"
620 PRINT AT 17,W;"(6*9a)"
630 PRINT AT 18,W;"(9a' 4*9a)"
640 RETURN
700 PRINT AT 16,F;"(9w'1sp'1*)"
710 PRINT AT 17,F;"9e'2*1sp)"
720 RETURN
800 PRINT AT 3,0;"HELLO."
810 LET X=1
820 GOTO 240
900 FOR Z=3 TO 6
910 PRINT AT 2,0;"      "
"
920 NEXT Z
930 RETURN

```



```

5 GOTO 8000
7 CLS
10 RAND
20 LET B$=""
30 PRINT "WHAT IS YOUR NAME PLEASE?"
40 INPUT C$
50 PRINT "WHAT DO YOU WANT TO SAY ";C$;"?"
60 PRINT
70 INPUT A$
75 IF PEEK 16398+256*PEEK 16399>PEEK 16396+256*PEEK 16397+693 THEN CLS
80 IF A$="" THEN GOTO 70
85 IF A$(LEN A$)<> "." AND A$(LEN A$)<> "?" THEN LET A$=A$+"."
90 PRINT "YOU:-";A$
100 IF A$(LEN A$)= "." OR A$(LEN A$)= "?" THEN LET A$=A$ TO LEN A$-1)
105 IF A$="CHANGE USERS" THEN GOTO 7
110 LET K=0
120 IF A$="GOOD" THEN LET B$="THANK YOU"
130 IF A$="HI" OR A$="HELLO" OR A$="GOOD" OR LEN A$<2 THEN LET K=1
140 IF LEN A$<2 THEN LET B$=""
150 IF A$="HI" OR A$="HELLO" TH

```

```

EN LET B$="HELLO THERE"
160 LET D$="DO"
170 IF LEN A$<3 THEN GOTO 330
180 IF A$( TO 2)="A " AND LEN A$<10 THEN LET B$="WHAT IS "+A$
190 IF LEN A$<7 THEN GOTO 270
200 IF A$( TO 4)="FOR " OR A$( TO 7)="BECAUSE" OR A$( TO 3)="TO " OR A$( TO 3)="SO " THEN LET B$="I SEE"
210 IF A$( TO 4)="STOP" THEN LET B$="ALL RIGHT"
220 GOSUB 4000
230 IF A$( TO 4)="THE " OR A$( TO 4)="HIS " OR A$( TO 4)="HER " THEN LET B$="REALLY"
240 IF B$="" THEN GOSUB 5000
250 IF A$( TO 3)="WE " THEN LET B$="WHO DO YOU MEAN BY WE"
260 IF A$( TO 2)="I " THEN GOSUB 1000
270 IF LEN A$<5 THEN GOTO 290
280 IF LEN A$>8 AND A$( TO 4)="THEY" THEN GOSUB 7000
290 IF LEN A$>7 AND A$( TO 3)="HE " OR A$( TO 2)="IT" OR A$( TO 3)="SHE" THEN GOSUB 2000
300 IF LEN A$>8 AND A$( TO 3)="YOU" THEN GOSUB 3000
310 IF LEN A$>4 THEN GOSUB 460
330 IF A$="NO" THEN LET B$="WHY NOT"

```

```

335 IF A$="YOU" THEN LET B$="WHAT ABOUT ME"
340 IF A$="YES" THEN LET B$="WHY"
345 IF A$="ME" THEN LET B$="WHAT ABOUT YOU"
350 IF A$="THANK ME" THEN LET B$="I AM ONLY FOLLOWING ORDERS"
360 IF A$="I KNOW" THEN LET B$="GOOD"
370 IF B$="" THEN LET B$=A$
375 IF PEEK 16398+256*PEEK 16399>PEEK 16396+256*PEEK 16397+693 THEN CLS
380 PRINT "ME:-";
390 IF B$=A$ AND RND<.7 OR RND<.2 AND LEN B$+LEN C$<18 THEN PRINT "ER..";
400 PRINT B$;
410 IF B$="REALLY" AND RND<.5 OR RND>.65 AND LEN B$+LEN C$<25 THEN PRINT " ";C$;
420 IF A$<>"THANK ME" AND B$<>"GOOD" AND B$<>"I SEE" AND B$<>"ALL RIGHT" AND K<>1 THEN PRINT "?"
430 IF A$="THANK ME" OR B$="I SEE" OR B$="ALL RIGHT" OR B$="GOOD" OR K=1 THEN PRINT "."
440 LET B$=""
450 GOTO 70
460 IF A$( TO 4)="YOUR" THEN LE

```

**H**OLDING an intelligent conversation with your 16K ZX-81 may seem a remote possibility but this program by Simon Parker of Leeds makes that possibility

closer than any other which has yet been submitted to *Sinclair Programs*.

Type-in your side of a **Conversation** and the computer responses will be displayed on the screen. The program

will give a sensible answer to the majority of your questions and can even cope with philosophical points such as "What is the meaning of life?" or "Why did the chicken cross the road?"

# CONVET

```

T B$="I KNOW"
470 IF A$( TO 4)="YOUR" THEN LET K=1
480 IF A$( TO 4)="LOTS" THEN LET B$="SUCH AS"
490 IF A$( TO 3)="MY " THEN LET B$="YOUR"+A$(3 TO )
500 IF A$( TO 3)="ME " THEN LET B$="YOU"+A$(3 TO )
900 RETURN
1000 IF A$(3 TO 4)="AM" THEN LET B$="WHY ARE YOU"+A$(5 TO )
1002 IF A$(3 TO 5)="CAN" THEN LET B$="HOW CAN YOU"+A$(6 TO )
1005 IF A$(3 TO 5)="WAS" THEN LET B$="WHY WERE YOU"+A$(6 TO )
1007 IF A$(3 TO 5)="DID" THEN LET B$="WHY DID YOU"+A$(6 TO )
1008 IF A$(3 TO 4)="DO" AND B$="" THEN LET B$="WHY DO YOU"+A$(5 TO )
1020 IF A$(3 TO 7)="COULD" THEN LET B$="HOW COULD YOU"+A$(8 TO )
1030 IF A$(3 TO 6)="HAVE" THEN LET B$="WHY HAVE YOU"+A$(7 TO )
1040 IF A$(3 TO 7)="WROTE" THEN LET B$="WHY DID YOU WRITE"+A$(8

```

```

TO )
1090 IF B$="" THEN LET B$="WHAT "+D$+" YOU"+A$(2 TO )+" FOR"
1900 RETURN
2010 IF A$(5 TO 6)="IS" THEN LET B$="WHAT IS IT THAT MAKES HER "+A$(7 TO )
2030 IF A$(4 TO 7)="DOES" THEN LET B$="WHY DOES "+A$( TO 2)+A$(8 TO )
2035 IF A$(5 TO 8)="DOES" THEN LET B$="WHY DOES SHE"+A$(9 TO )
2040 IF A$(4 TO 6)="CAN" THEN LET B$="HOW CAN "+A$( TO 2)+A$(7 TO )
2050 IF A$(5 TO 7)="CAN" THEN LET B$="HOW CAN SHE"+A$(8 TO )
2060 IF B$="" THEN LET B$="WHY IS IT THAT "+A$
2900 RETURN
3000 IF A$(5 TO 7)="ARE" THEN LET B$="WHY AM I"+A$(8 TO )
3010 IF A$(5 TO 8)="WERE" THEN LET B$="WHY WAS I"+A$(9 TO )
3020 IF A$(5 TO 8)="HAVE" THEN LET B$="WHY HAVE I"+A$(9 TO )
3030 IF A$(5 TO 9)="WOULD" THEN

```

```

LET B$="WHY WOULD I"+A$(10 TO )
3040 IF A$(5 TO 7)="DO " THEN LET B$="WHAT DO I"+A$(7 TO )+" FOR"
3050 IF A$(5 TO 7)="CAN" THEN LET B$="HOW CAN I"+A$(8 TO )
3080 IF B$="" THEN LET B$="WHAT "+D$+" I"+A$(4 TO )+" FOR"
3090 RETURN
4000 IF A$( TO 4)="WHAT" OR A$( TO 3)="WHO" THEN LET B$="I DO NOT KNOW"
4005 IF A$( TO 3)="WHY" THEN LET B$="BECAUSE THAT IS THE WAY IT IS"
4010 IF A$( TO 5)="WHERE" THEN LET B$="OVER THERE SOMEWHERE"
4020 IF A$( TO 3)="ARE" OR A$( TO 5)="WILL " THEN LET B$="PROBABLY"
4030 IF A$( TO 5)="COULD" OR A$( TO 4)="CAN " THEN LET B$="I DOUBT IT"
4040 IF A$( TO 5)="DO YOU" THEN LET B$="I MIGHT DO"
4050 IF A$( TO 3)="HOW" OR A$( TO 4)="WHEN" THEN LET B$="WHAT DO

```





# RSATION

```

1000 YOU WANT TO KNOW THAT FOR"
4060 IF B$="" THEN RETURN
4070 IF B$(1)<>"W" THEN LET K=1
4080 RETURN
5000 DIM A$(LEN A$)
5005 LET B$=""
5010 FOR F=5 TO LEN A$-1
5015 LET A$(F)=0
5020 IF A$(F TO F+1)="MY" THEN LET A$(F)=1
5021 IF A$(F-1 TO F+1)="ME" THEN LET A$(F)=3
5023 IF A$(F-3 TO F+1)="LIKE " OR A$(F-3 TO F+1)="LOVE " THEN LET K=F
5025 IF A$(F-2 TO F+1)="YOUR" THEN LET A$(F)=2
5027 IF A$(F-1 TO F+1)="YOU" THEN LET A$(F)=4
5029 IF A$(F-1 TO F+1)="I " THEN LET A$(F)=-1
5030 IF A$(LEN A$-1 TO )="ED" OR A$(F-1 TO F+1)="ED " OR A$(F-3 TO F+1)="UGHT " THEN LET D$="HAVE"
5032 IF A$(F-1 TO F+1)="OFF" THEN GOTO 9000
5035 NEXT F

```

```

5040 LET L=LEN A$
5050 FOR F=4 TO L
5055 IF A$(F)=-1 THEN LET A$=A$( TO F-1)+"YOU"+A$(F+1 TO )
5060 IF A$(F)=1 THEN LET A$=A$( TO F-1)+"YOUR"+A$(F+2 TO )
5062 IF A$(F)=3 THEN LET A$=A$( TO F-1)+"YOU"+A$(F+2 TO )
5065 IF A$(F)=2 THEN LET A$=A$( TO F-3)+"MY"+A$(F+1 TO )
5067 IF A$(F)=4 THEN LET A$=A$( TO F-2)+"ME"+A$(F+2 TO )
5070 NEXT F
5075 IF K>2 THEN LET B$="WHAT IS "+A$(K+1 TO )+" LIKE"
5077 LET K=0
5080 IF A$(LEN A$)="3" AND B$( TO 4)="WHAT" THEN LET B$="WHAT ARE "+B$( TO )
6000 IF B$(1)=" " THEN LET B$=""
6020 RETURN
7000 IF A$(6 TO 9)="HAVE" THEN LET B$="WHY HAVE THEY"+A$(10 TO )
7010 IF A$(6 TO 8)="ARE" THEN LET B$="WHY ARE THEY"+A$(9 TO )
7020 IF B$="" THEN LET B$="WHY "+D$+" THEY"+A$(5 TO )
7900 RETURN

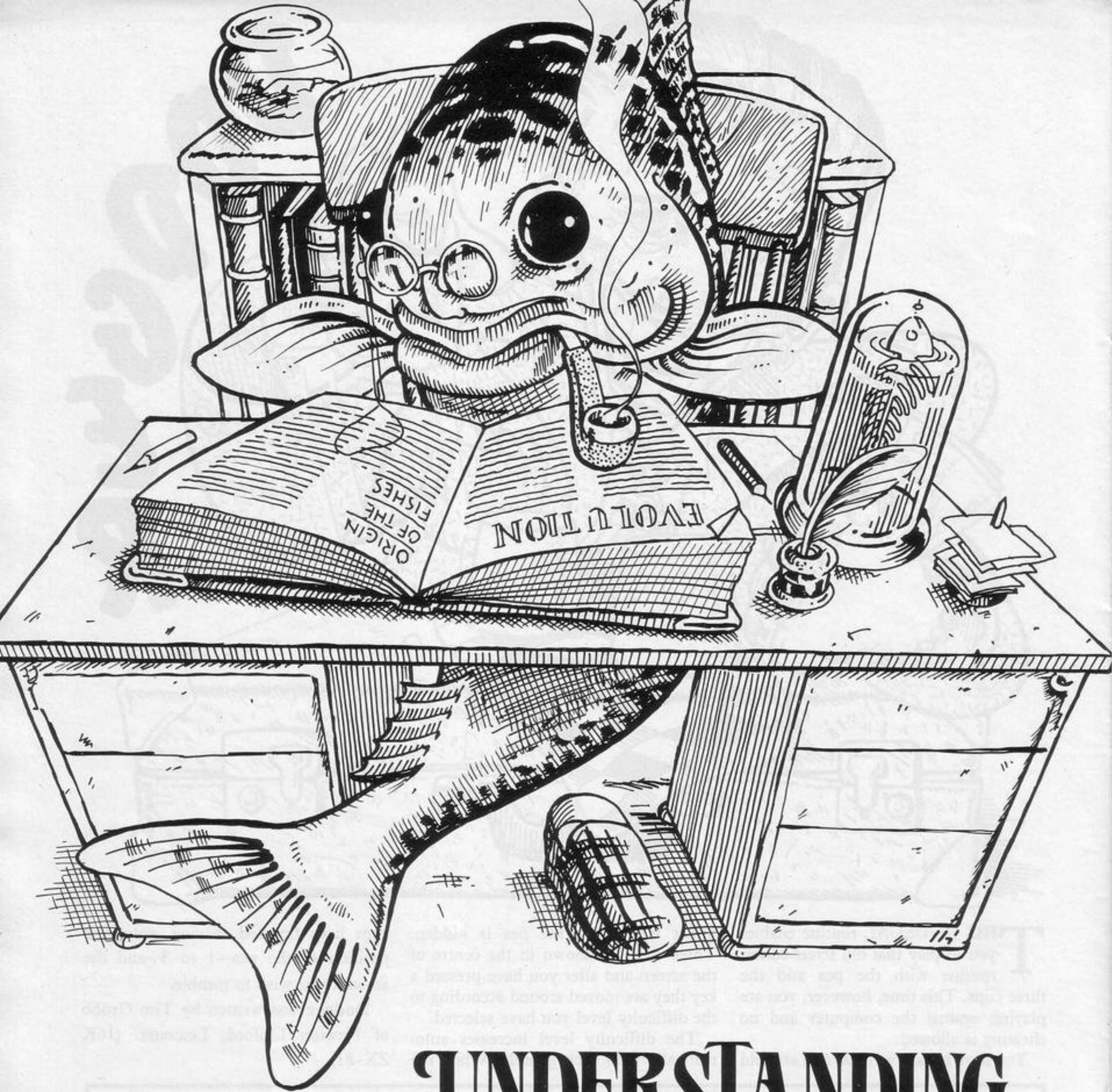
```

```

8000 DIM A$(8,30)
8010 LET A$(1)=" I AM YOUR ZX81, AND I AM HERE"
8020 LET A$(2)="TODAY TO COMMUNICATE WITH YOU,"
8030 LET A$(3)="AND MAKE YOU REALISE JUST HOW"
8040 LET A$(4)="MUCH THE WORLD OF THE USERS"
8050 LET A$(5)="INTERESTS ME."
8060 LET A$(6)=" I HOPE I DO NOT SCARE YOU,AS"
8070 LET A$(7)="I AM A VERY FRIENDLY COMPUTER,"
8080 LET A$(8)="AS YOU SHALL SOON SEE."
8110 FOR F=1 TO 8
8115 FOR B=1 TO 30
8117 PRINT AT F*2+1,B;" "
8120 PRINT AT F*2+1,B;A$(F,B)
8130 NEXT B
8150 NEXT F
8240 RUN ?
9000 CLS
9010 PRINT AT 10,1;"I DO NOT LIKE YOUR LANGUAGE"
9020 PAUSE 150
9030 NEW

```





# UNDERSTANDING EVOLUTION

**D**R ELIOT GINGOLD, lecturer in genetics at Hatfield Polytechnic, has sent a Spectrum program to simulate the development of mixed populations under evolutionary pressures. He believes that the use of computers for the purpose has the great advantage over mathematical equations that random influences can be included in the model.

The listing sets up a small, local population of black and yellow mice

and follows it for successive generations. The variation in colour is controlled by two variant forms of a single gene, with the black-inducing gene dominant over yellow.

The user is invited to fix the population size and the differing selection pressures on the two types. An interesting finding is that small populations suffering no selection pressure eventually will resolve into entirely black or yellow types. Such results show the

importance of the random element.

"This so-called 'genetic drift' is an important factor in discussions of evolutionary theory. Many scientists believe that such random events are the basis for many of the observed differences between species," he says.

The listing is aimed at A level students but its avoidance of technical terms should assure it wider usefulness. In the listing, the mice should be entered as graphic M. (48K Spectrum).



```

1 DIM a$(250): DIM b(51)
20 GO SUB 9000
24 BORDER 7: PAPER 7: CLS
25 PRINT INK 1; "This program s
imulates a local population of
mice. Two types are found, bla
ck mice -- " and yellow m
ice -- ". INK 6; " " INK 2; "Th
e difference is due to a gene"
with two alleles. Y(black) is "
dominant over y(yellow). " "This
means that " YY -- black " " Y
y -- black " " yy -- yellow "
INK 1; "Remember a mouse could
be YY, " "or Yy, a carrier of yel
low. " "Yellow alleles can hide i
n black " "mice! " INK 0; INVER
SE 1; " Press any key to continue
"
26 IF INKEY$="" THEN GO TO 26
27 CLS: PRINT INK 2; "You may
follow the changes in " "this pop
ulation during up to 50 " "genera
tions. " INK 1; "Each generation
the population " "will at first
double. But not " "all can surviv
e. You will be " "asked to fix th
e maximum numbers " "capable of s
urviving. "
28 PRINT INK 2; "Three situati
ons are possible. " "selection ag
ainst yellow -- " "i.e. -black m
ore fit to survive " "selection a
gainst black -- " "i.e. yellow
more fit to survive " "or no sele
ction -- " "i.e. both types equ
ally fit "
29 PRINT INK 2; "You can try an
y of these, " "and if you have se
lection you " "may determine its
strength. " INK 0; INVERSE 1; "
Press any key to start. "
30 IF INKEY$="" THEN GO TO 30
40 BORDER 7: PAPER 7: CLS
50 PRINT AT 7,0; INK 2; "Input
the maximum population " "that th
e environment can hold. " " (can be
up to 125) "
52 INPUT p0: IF p0<1 OR p0>125
THEN PRINT INK 0; "Must be bet
ween 0 and 125. " GO TO 52
55 CLS: PRINT AT 7,0; INK 1; "
Selection could be " "Against
yellow INPUT 0 " "Against bl
ack INPUT 1 " "Or no select
ion INPUT 2 "
57 INPUT d: IF d<>0 AND d<>1 A
ND d<>2 THEN PRINT INK 0; "Must
be 0, 1 or 2 " GO TO 57
58 IF d=2 THEN GO TO 75
60 CLS: PRINT AT 7,0; INK 2; "
What is the strength of " "select
ion measured as a % ? " " (100% w
ould mean that the unfit " "type
is lethal) " "Input a number up
to 100 "
62 INPUT sp: IF sp<0 OR sp>100
THEN PRINT INK 0; "Must be betw
een 0 and 100 " GO TO 62
70 LET s=100-sp
75 CLS: PRINT AT 7,0; INK 1; "
What is the starting % of " "yell
ow alleles? -- (xy) " " (Remembe
r that many will " "be hidden in
black mice!) " "Input a number u
p to 100 "
77 INPUT y: IF y<0 OR y>100 TH
EN PRINT INK 0; "Must be between
0 and 100 " GO TO 77
100 LET n=1: LET p=p0
110 LET y=y/100: LET b(1)=y
200 LET sb=1: LET sy=1: IF d=0
THEN LET sy=s/100
201 IF d=1 THEN LET sb=s/100
215 BORDER 7: PAPER 7: CLS
220 LET n=n+1: GO SUB 1000
265 GO SUB 2000
268 IF n=51 THEN PAUSE 120: GO
TO 310
270 POKE 23692,255
280 PRINT BRIGHT 1; INVERSE 1;
INK 0; "PRESS M FOR MORE ,G FOR G
RAPH"
285 GO SUB 5000
290 IF I$="M" OR I$="m" THEN GO
TO 215
300 IF I$="G" OR I$="g" THEN GO
TO 310
305 GO TO 285
310 GO SUB 6000
311 GO SUB 5000
315 IF I$="M" OR I$="m" THEN GO
TO 215
320 IF I$="N" OR I$="n" THEN GO
TO 40
325 IF I$="S" OR I$="s" THEN PA
PER 7: STOP
350 GO TO 311
1000 PRINT AT 0,7; INK 2; BRIGHT

```

```

1; "NEXT GENERATION ("n-1;") "
1005 LET ym=0: LET cd=0: FOR f=1
TO 2*p
1010 LET x=AND: LET v=AND
1020 LET z=(x>y)+(v>y)
1030 LET cd=cd+z
1040 LET a$(f)=STR$(z)
1045 LET i=0: IF a$(f)="0" THEN
LET i=6: LET ym=ym+1
1046 PRINT INK i; " "
1050 NEXT f
1060 LET y=(4*p-cd)/(4*p)
1065 PRINT AT 19,0; INK 2; BRIGHT
1; ym; " yellow mice out of " (2
*p) (4*p-cd); " yellow alleles ou
t of " (4*p)
1070 RETURN
2000 PAUSE 150: PRINT AT 0,7; IN
K 2; BRIGHT 1; FLASH 1; " NOT ALL
CAN SURVIVE "
2005 LET ps=2*p: LET bm=2*p-ym:
LET bm1=bm: LET ym1=ym
2006 LET r=p0/(sb*bm+sy*ym)
2007 IF r>1 THEN LET r=1
2010 FOR F=1 TO 2*p
2060 LET x=AND
2071 IF ((a$(f)>"0") AND (x>r*sb
)) THEN LET cd=cd-VAL(a$(f)): L
ET bm1=bm1-1: LET a$(f)="d": LET
ps=ps-1: PRINT " "
2072 IF ((a$(f)="0") AND (x>r*sy
)) THEN LET ym1=ym1-1: LET a$(f)
="d": LET ps=ps-1: PRINT " "
2075 IF a$(f)<>"d" THEN PRINT OV
ER 1; INK 8; " "
2080 NEXT f
2082 PRINT AT 20,31; " "
2083 PRINT AT 0,0; "
2084 IF bm=0 THEN PRINT AT 19,0;
"
2085 IF bm>0 THEN PRINT AT 19,0;
BRIGHT 1; INK 2; bm1; " BLACK SU
RVIVED FROM "bm; INK 1; TAB (28)
;INT (100*bm1/bm+.5); "% "
2086 IF ym>0 THEN PRINT AT 20,0;
BRIGHT 1; INK 2; ym1; " YELLOW SU
RVIVED FROM "ym; INK 1; TAB (26)
;INT (100*ym1/ym+.5); "% "
2090 LET y=(2*ps-cd)/(2*ps): PRI
NT BRIGHT 1; INK 1; "xy="; (INT (y
*1000+.5))/10; " (Last Generati
on="; (INT (b(n-1)*1000+.5))/10;
") "
2095 LET b(n)=y
2096 LET p=p0: IF ps<=p0 THEN LE
T p=ps
2100 RETURN
5000 IF INKEY$="" THEN GO TO 500
0
5020 LET I$=INKEY$: RETURN
5000 BORDER 1: PAPER 1: CLS: IN
K 7: PLOT 47,156: DRAW 0,-120: D
RAW 200,0
5010 FOR f=36 TO 156 STEP 24: PL
OT 45,f: DRAW -3,0: NEXT f
5020 FOR f=47 TO 247 STEP 40: PL
OT f,36: DRAW 0,-4: NEXT f
5030 PRINT AT 9,0; "xy"; AT 2,2; "1
00"; AT 5,3; "80"; AT 8,3; "60"; AT 1
1,3; "40"; AT 14,3; "20"; AT 17,4; "0
"
5040 PRINT AT 18,6; "0 10 20
30 40 50"; AT 19,15; "Genera
tion"
5050 PRINT AT 1,6; INVERSE 1; "Po
pulation max. "p0
5060 IF d=2 THEN PRINT AT 0,10;
INVERSE 1; "No selection "
5070 IF d=1 THEN PRINT AT 0,2; I
NVERSE 1;INT (sp); "% selection a
gainst black"
5080 IF d=0 THEN PRINT AT 0,1; I
NVERSE 1;INT (sp); "% selection a
gainst yellow"
5100 PLOT 46,120*b(1)+36: DRAW 0
VER 1;3,0
5110 FOR f=2 TO n: PLOT OVER 1;4
2+4*f,120*b(f)+36: NEXT f
5115 IF n=51 THEN GO TO 6200
5120 PRINT AT 20,0; INVERSE 1; "P
ress M for more " "n for new star
t, s to stop"
5130 INK 0: RETURN
5200 LET n=1: LET b(1)=y
5210 PRINT AT 19,0; INVERSE 1; F
LASH 1; "GRAPH FULL " FLASH 0; "P
ressing M continues run, but " "r
estarts graph (n=newrun,s=stop) "
5215 INK 0: RETURN
9000 DATA 0,BIN 00001001,BIN 000
00110,BIN 00111110,BIN 01111100,
BIN 01111100,BIN 10000000,BIN 11
111110
9010 FOR f=0 TO 7
9015 READ gr
9020 POKE USR "M"+f,gr
9025 NEXT f: RETURN

```



# FIRE!

**C**ATCH the fleeing inhabitants of a blazing tower block and direct them towards the ambulance. **Fire** was written for the 16K ZX-81 by C Robson of Cowley, Middlesex.



```

1 FAST
2 RAND
10 LET A$="0505060709121512100
910121510091011121314"
15 LET FIRST=1
20 DIM A(20)
30 FOR C=1 TO 20
40 LET A(C)=VAL A$(2*C-1 TO 2*
C)
50 NEXT C
60 DIM S(4)
65 DIM U(4)
70 DIM B(4)
80 LET SCORE=0
90 LET DEAD=0
100 FOR C=1 TO 4
110 LET S(C)=-1
112 LET U(C)=0
115 LET B(C)=0
117 NEXT C
118 LET S(1)=INT (RND*5+5)
120 FOR C=0 TO 21
130 PRINT AT C,0;"(30*isp)"
140 NEXT C
150 FOR C=5 TO 19 STEP 2
160 PRINT AT C,1;"(96' 96)" ;A
T C+1,1;"(97' 97)"
170 NEXT C
180 PRINT AT 16,25;"(94)" ;AT
17,25;"(92'9e' 97')" ;AT 18,25;
" ;AT 19,25;"(isp'1*isp'1*
)"
190 LET PX=7
191 SLOW
192 IF FIRST=1 THEN GOSUB 2000

```

```

195 FOR C=1 TO 4
200 PRINT AT 16,PX;"(isp'9e'2*9
6'9r'isp)"
210 LET B(C)=B(C)+1
220 LET K$=INKEY$
225 LET PX=PX+(1 AND K$="8" AND
PX<19)-(1 AND K$="5" AND PX>6)
230 IF S(C)=-1 THEN GOTO 400
240 LET BY=A(B(C))
250 LET BX=S(C)+B(C)
260 PRINT AT BY,BX;"(1*)"
270 PRINT AT U(C),BX-1;"(isp)"
275 LET U(C)=BY
276 PRINT AT 16,PX;"(isp'9e'2*9
6'9r'isp)"
277 LET K$=INKEY$
278 LET PX=PX+(1 AND K$="8" AND
PX<19)-(1 AND K$="5" AND PX>6)
280 IF BY=15 THEN GOTO 500
290 IF B(C)=20 THEN GOTO 600
300 GOTO 1000
400 IF RND<=.9-SCORE*.05 THEN G
OTO 1000
410 LET S(C)=INT (RND*5+5)
420 LET B(C)=0
430 PRINT AT 4,6;"help" ;AT 4,6;
"(4*isp)"
440 GOTO 1000
500 IF BX=PX+2 OR BX=PX+3 THEN
GOTO 1000
510 PRINT AT 15,BX;"ouch" ;AT 15
520 LET DEAD=DEAD+1
530 PRINT AT 1,DEAD;"(1*)"
540 IF DEAD<4 THEN GOTO 800

```

```

550 PRINT AT 10,10;"GAME(isp)OV
ER" ;AT 12,10;"SCORE(isp)=(isp)" ;
SCORE
560 GOSUB 2040
570 GOTO 80
600 PRINT AT 14,25;"(5*isp)"
620 LET SCORE=SCORE+1
800 LET S(C)=-1
810 LET U(C)=0
820 LET B(C)=0
1000 NEXT C
1010 GOTO 195
2000 LET FIRST=0
2010 PRINT AT 4,10;"(3*1*isp'fi
re'isp'3*1*)"
2020 PRINT AT 6,6;"use the curso
r keys 5+8" ;AT 7,6;"to move the
sheet :i(9e'2*96'9r'i)"
2030 PRINT AT 9,6;"and get the P
2030 PRINT AT 9,6;"and get the P
eople" ;AT 10,6;"safely to the am
bulance"
2040 PRINT AT 14,6;"Press any ke
y to start"
2050 IF INKEY$="" THEN GOTO 2050
2060 IF INKEY$<>"" THEN GOTO 206
0
2070 FOR Q=4 TO 14
2080 PRINT AT Q,6;"(24*isp)"
2090 NEXT Q
3000 RETURN
5000 CLEAR
5010 SAVE "FIRE"
5020 RUN

```



# FALL THROUGH

```

D 1 FAST
2 CLS
5 DIM S(2)
10 DIM A$(8,10)
15 DIM A(8)
20 DIM D$(8,10)
21 DIM M(2,8,8)
25 DIM D(8)
30 FOR N=1 TO 8
40 FOR H=1 TO 5
60 LET A$(N,2*H-INT (RND*.5))=
"(isp)"
65 LET D$(N,2*H-(RND*.5))="(isp)"
70 NEXT H
71 LET H=2+INT (RND*10)
72 LET A$(N)=A$(N,H TO )+A$(N,
1 TO H-1)
73 LET H=2+INT (RND*10)
74 LET D$(N)=D$(N,H TO )+D$(N,
1 TO H-1)
75 LET A(N)=INT (RND*3)
76 LET D(N)=INT (RND*3)
80 NEXT N
90 SLOW
100 FOR N=1 TO 8
110 PRINT AT 2*N,4)
120 FOR M=1 TO 8
130 PRINT "(isp)" + CHR$(128*(A$
(N,M)+" "+131*(D$(M,N)+" " AND
A$(N,M)+"(isp)"))
140 NEXT M
141 FOR D=0 TO A(N)
142 PRINT "(isp(isp)"
143 NEXT D
150 FOR D=1 TO D(N)
151 PRINT AT 16+2*D,2*N+3;"(isp
)"
152 NEXT D
160 NEXT N
170 LET S(1)=8
180 LET S(2)=8
200 FOR M=1 TO 8
210 FOR P=1 TO 2
220 LET X=1
230 LET Y=1
270 PRINT AT 2*Y-1,3+2*X;CHR$(
23+128*(M(1,X,Y)<M(2,X,Y)))
280 GOSUB 2500
305 IF D=11 THEN GOTO 390
307 PRINT AT 2*Y-1,3+2*X;CHR$(
307 PRINT AT 2*Y-1,3+2*X;CHR$(
28*(M(1,X,Y)<M(2,X,Y))+M(1,X,Y)
+M(2,X,Y))
310 LET Y=Y-(D=8)+(D=2)
320 IF Y<1 THEN LET Y=1
330 IF Y>8 THEN LET Y=8
340 LET X=X+(D=6)-(D=4)
350 IF X<1 THEN LET X=1
360 IF X>8 THEN LET X=8
370 GOTO 270
390 IF D$(X,Y)+A$(Y,X)="(2*isp)"
" OR M(1,X,Y)<M(2,X,Y) THEN GOT
O 280
400 PRINT AT 2*Y-1,3+2*X;P
405 LET M(P,X,Y)=P
410 NEXT P
420 NEXT M
500 LET X=0
510 LET Y=0
520 LET P=1+(P=1)
530 PRINT AT 2*Y,3+2*X;"*"
540 GOSUB 2500
565 PRINT AT 2*Y,3+2*X;" "
570 IF ((D=2 OR D=8) AND X) OR
((D=4 OR D=6) AND Y) THEN GOTO 7
00
580 LET Y=Y+(D=2)*(Y<8)-(D=8)*(
Y>8)
590 LET X=X+(D=6)*(X<8)-(D=4)*(
X>8)

```

**A** BOARD is displayed, comprising horizontal and vertical strips, each with several holes in it. Each strip can be moved to three positions and the markings at the bottom and right-hand side indicate where they start.

If a horizontal strip has a hole in the play area it is shown as a gap in the line. If a vertical strip has a hole in the play area it is visible only when it coincides with a hole in the vertical strip, in which case it appears as a hole.

The game begins with the two players taking turns to set their numbers on the board. Player one moves the cursor with keys 2,Q,W and A and sets a number with Z. Player two moves the cursor with 0,O,P and L and sets a

number with. When each player has set eight numbers the cursor will move to a slightly higher position on the screen. Players must then take turns to choose a strip to move. The cursor then moves along the left and top of the board, so that a control key in line with the edge will move the cursor, and a control key in line with a strip will move that strip. line with a strip will move that strip.

When the strips are moved so that a number stands on a hole it will fall through and vanish. The object of the game is to remove all your opponent's numbers.

**Fall Through** was written for the 16K ZX-81 by R Entwistle and son of Cheltenham.





```

600 GOTO 530
700 IF NOT X THEN GOTO 704
701 IF (D=2 AND D(X)=2) OR (D=8
AND D(X)=8) THEN GOTO 530
704 IF NOT Y THEN GOTO 710
705 IF (D=4 AND A(Y)=8) OR (D=6
AND A(Y)=2) THEN GOTO 530
710 IF D<>2 THEN GOTO 750
720 LET D(X)=D(X,10)+D(X,1 T
0 9)
730 LET D(X)=D(X)+1
740 GOTO 800
750 IF D<>8 THEN GOTO 900
760 LET D(X)=D(X,2 TO )+D(X,
1)
770 LET D(X)=D(X)-1
800 FOR N=1 TO 2
810 PRINT AT 2*N+16,2*X+3;CHR#
(128*(N=D(X)))
820 NEXT N
830 FOR N=1 TO 8
840 PRINT AT 2*N,3+2*X;CHR# (12
8*(A(N,X)="")+131*(D(N,X)=" "
AND A(N,X)="(isp)"))
850 IF D(X,N)=" " OR A(N,X)="
" THEN GOTO 800
859 IF NOT M(1,X,N) THEN GOTO 8
65
860 LET S(1)=S(1)-1
861 LET M(1,X,N)=0
865 IF NOT M(2,X,N) THEN GOTO 8
70
866 LET M(2,X,N)=0
867 LET S(2)=S(2)-1
870 PRINT AT 2*N-1,3+2*X;" "
880 NEXT N
890 GOTO 2000
900 IF D<>6 THEN GOTO 950
920 LET A(Y)=A(Y,10)+A(Y,1 T
0 9)
930 LET A(Y)=A(Y)+1
940 GOTO 1000
950 IF D<>4 THEN GOTO 2000
960 LET A(Y)=A(Y,2 TO )+A(Y,
1)
970 LET A(Y)=A(Y)-1
1000 FOR N=1 TO 2
1010 PRINT AT 2*Y,2*N+20;CHR# (1
28*(N=A(Y)))
1020 NEXT N
1030 FOR N=1 TO 8
1040 PRINT AT 2*Y,3+2*N;CHR# (12
8*(A(Y,N)="")+131*(D(N,Y)=" "
AND A(Y,N)="(isp)"))
1050 IF D(N,Y)=" " OR A(Y,N)="
" THEN GOTO 1000
1060 IF NOT M(1,N,Y) THEN GOTO 1
065

```



```

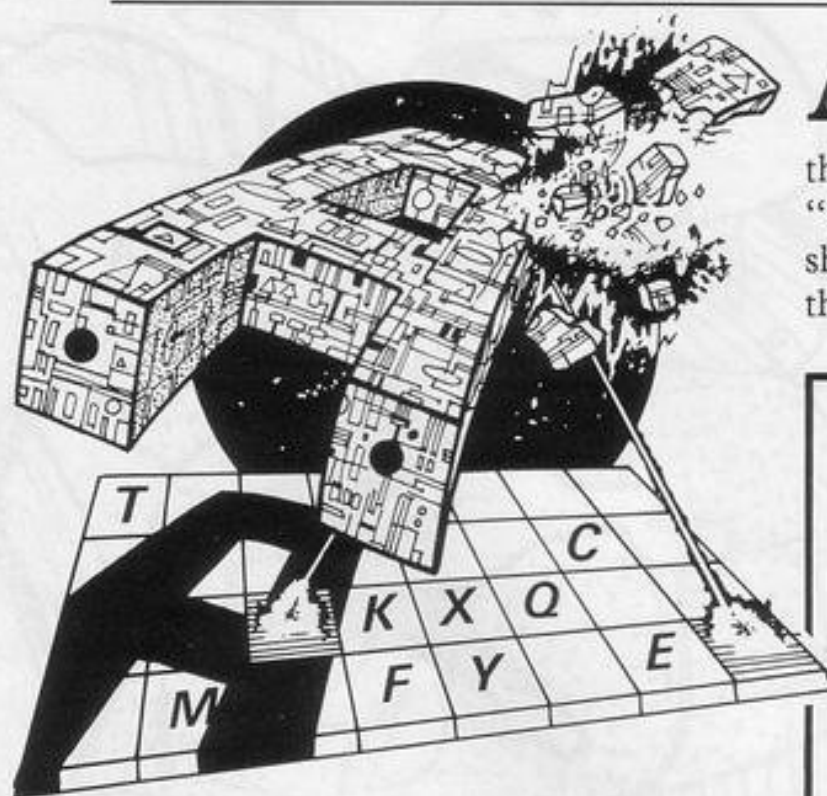
1061 LET M(1,N,Y)=0
1062 LET S(1)=S(1)-1
1065 IF NOT M(2,N,Y) THEN GOTO 1
070
1066 LET M(2,N,Y)=0
1067 LET S(2)=S(2)-1
1070 PRINT AT 2*Y-1,3+2*N;" "
1080 NEXT N
2000 IF S(1)<=0 OR S(2)<=0 THEN
GOTO 2020
2010 GOTO 500
2020 IF S(1)<=0 THEN PRINT AT 20
,0;"PLAYER 1 HAS LOST"
2030 IF S(2)<=0 THEN PRINT AT 21
,0;"PLAYER 2 HAS LOST"
2040 PRINT AT 0,10;"PRESS N/L TO

```

```

REPLAY"
2050 INPUT K#
2060 RUN
2500 LET K#=INKEY#
2510 IF P=1 THEN LET D=2*(K#="A"
)+4*(K#="Q")+6*(K#="W")+8*(K#="2"
")+11*(K#="Z")
2520 IF P=2 THEN LET D=2*(K#="L"
)+4*(K#="O")+6*(K#="P")+8*(K#="0"
")+11*(K#=".")
2530 IF NOT D THEN GOTO 2500
2540 RETURN
3000 CLEAR
3010 SAVE "FAIL THROUGH"
3020 RUN

```



# ALPHA ATTACK

A STRING of random characters is printed at the top of the screen and one of them also appears at the bottom. Using the keys "Q"—left, "E"—right, and "P"—fire, you must shoot the character from the string at the top.

Your time to achieve that is limited

```

9 PRINT AT 10,10;"Any key": P
AUSE 0
10 LET y=40: LET J=2: LET m=0:
LET s=0: LET l=15
20 CLS
30 BORDER 6: PAPER 7: INK 1
40 CLS: IF m=3 THEN GO TO 500
50 FOR f=3 TO 25
60 PRINT AT 3,f;CHR# ((RND*100
)+27)
70 NEXT f
75 LET y=y+2
80 GO TO 100
90 FOR t=y TO 100
100 IF t>70 THEN PRINT AT 5,t-7
0;"(sp:ix)"
110 BEEP .009,t-40
120 PRINT AT 20,1;"(sp:i96:it:9
6:sp)"
130 LET l=1+(INKEY#="e")-(INKEY
#="q")+(l=0)-(l=28)
140 IF INKEY#="p" THEN BEEP .00
5,10: BEEP .007,3: GO TO 220
150 NEXT t
160 BEEP 1,-50

```

and decreases after each shot. When the inverse "X" reaches the right of the screen your time has expired. The game ends when you miss for the third time.

**Alpha Attack** was written for the 16K Spectrum by Laurence Wood of Northampton.

```

170 LET m=m+1: GO TO 40
180 LET a#=SCREEN# (3,INT (RND*
20)+3)
190 PRINT AT 0,22;"SCORE=";s;A
T 0,0;"Misses:";m
200 PRINT AT INT (RND*10)+10,IN
T (RND*30);a#
210 GO TO 90
220 FOR z=19 TO 4 STEP -1: PRIN
T AT z,1+2;"^": NEXT z
230 IF SCREEN# (3,1+2)<>a# THEN
BEEP .2,-30: BEEP .2,-60: LET m
=m+1: GO TO 40
240 LET s=s+1
250 BEEP .01,10: BEEP .01,20
260 GO TO 40
500 BEEP .7,-30: BEEP .7,-60: C
LS
510 PRINT AT 10,9: FLASH 1;"Th
ird miss!"; FLASH 0;AT 2,11;"S
core=";s;AT 10,5;"Any key to p
lay again"
520 PAUSE 0
530 GO TO 10

```





**T**HE OBJECT is to collect as many honeypots as possible from the tree on the left of the screen. To get a honeypot you must jump over the rolling boulders, the hole and the wall. Once you are under the honeypot it will fall down to you. Move left with "5", right with "8" and jump with "0".

**Snuffles** was written for the 16K ZX-81 by J Hallett of Helston, Cornwall.

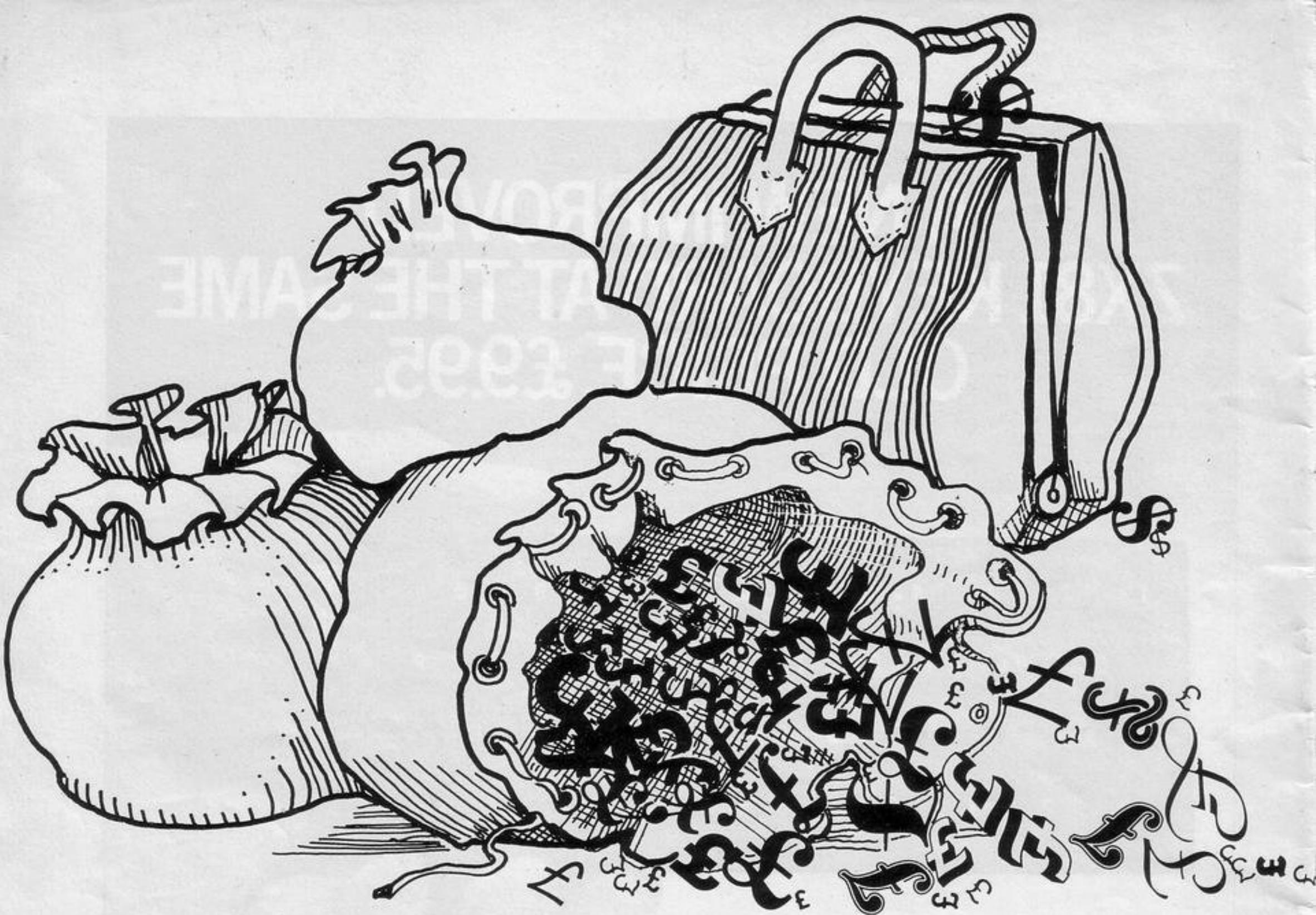
# SNUFFLES

```

1 DIM A$(12,0)
2 LET SC=0
6 LET Y=23
7 LET F=6
10 LET A$(1)="(2*sp:4*9h:2*sp)"
"
11 LET A$(2)="(sp:6*9h:sp)"
12 LET A$(3)="(8*9h)"
13 LET A$(4)="(sp:6*9h:sp)"
14 LET A$(5)="(2*sp:4*9h:2*sp)"
"
15 LET A$(6)="(3*sp:98:95:3*sp)"
"
16 LET A$(7)="(3*sp:98:95:3*sp)"
"
17 LET A$(8)="(3*sp:98:95:3*sp)"
"
18 LET A$(9)="(3*sp:98:95:3*sp)"
"
19 FOR N=1 TO 9
20 PRINT A$(N)
21 NEXT N
22 PRINT AT 9,0;"(16*97:sp:14*97)"
23 LET X=8
24 PRINT AT 4,4;"U"
25 PRINT AT 8,F;" 0"
26 LET I#=INKEY#
27 IF I#="5" THEN LET Y=Y-1
28 IF I#="0" THEN LET Y=Y+1
29 IF I#="8" THEN LET X=X-1
30 IF I#="0" THEN LET Y=Y+1
31 PRINT AT X,Y;" 8  "
32 LET F=F+1
33 PRINT AT 8,11;"(95)"
34 IF X=8 AND Y=10 OR Y=F THEN GOSUB 1000
35 PRINT AT X-1,Y;"      "
36 IF F>=25 THEN LET F=6
37 IF Y=15 AND X=8 THEN GOSUB 2000
38 IF Y=5 THEN GOSUB 3000
39 PRINT AT 8,25;"      "
40 GOTO 23
1000 PRINT AT 10,10;"SPLAT.SCORE=";SC
1020 STOP
2000 PRINT AT X,Y;"      "AT X+1,Y+1;"8";AT 10,10;"AARGH.SCORE=";SC
2020 STOP
3000 PRINT AT 4,4;"(9h)";AT 8,5;"U"
3010 PAUSE 100
3020 LET SC=SC+10
3030 CLS
3040 GOTO 5

```





# MONEY BAGS

**M**ONEY BAGS was written by R Smith of Scunthorpe, South Humberside. Race from your starting position to the "H", jumping the barrels using "K" and jumping for the money bags to collect extra points. Use "M" to go straight ahead, and "Z" to go backwards. You score in pounds and gain an extra life on accumulating £1,500.

Money Bags is for the 16K Spectrum.

```

1 PAPER 0: INK 4: BORDER 0: C
LS
2 GO SUB 120
3 LET hi=3500: LET h#="SPECTR
UM"
4 POKE 23658,0: LET l=3: LET
a#="": LET t=0
5 LET a=1+INT (RND*20): LET y
=19: LET x=0
6 CLS
7 IF t>=100 THEN PRINT AT 2,
31,"b"
10 PLOT 0,15: DRAW 255,0
20 PLOT 0,87: DRAW 255,0
30 PLOT 0,135: DRAW 255,0
40 FOR n=11 TO 19: PRINT AT n,
a: INK 2:"c": NEXT n
50 FOR n=5 TO 10: PRINT AT n,(
a/a+10): INK 2:"c": NEXT n
55 PRINT INK 6:AT 3,(a/a+15):
"bb"
60 GO SUB 250
70 PRINT AT 3,31,"H"
80 IF RND>.3 THEN GO SUB 200
90 PRINT AT 0,0:"Money=#":t:
Lives="":l:"Hi score=#":hi:" By
":h#
100 PRINT AT 10,a-1:" "AT 19
,a: "AT 9,(a/a+9): "AT 10
,(a/a+10): "IN 2:AT 10,a:"c
"TAB a:"c":AT 9,(a/a+10):"c":TA
B (a/a+10):"c": GO TO 60
110 PRINT AT y,x+1:"b": LET t=t
+100: BEEP .01,0: BEEP .01,2: BE
EP .01,4: GO TO 5
120 FOR n=USR "a" TO USR "c"+7
130 READ a: POKE n,a: NEXT n
140 DATA 56,56,56,16,124,16,40,
108,126,60,102,219,143,223,195,1
26,129,255,129,129,129,255,129,1
29
150 RETURN
200 LET b=y: FOR n=30 TO 1 STEP
-1: PRINT AT b,n) "0": GO SUB
250: NEXT n
210 RETURN
250 IF INKEY#="k" THEN LET y=y
-1: LET a#="k": PRINT AT y+1,x)
"
251 IF SCREEN# (y,x+2)="0" THEN
LET l=l-1: BEEP .5,50
252 IF t=1500 THEN LET l=+1
253 IF ATTR (y-1,x+1)=2 THEN L
ET y=y-3: GO TO 253
254 IF ATTR (y,x+2)=6 THEN LET
t=t+50: BEEP .1,0
255 IF SCREEN# (y-1,x+2)="H" TH
EN GO TO 110
256 IF l<=0 THEN GO TO 300
260 PRINT AT y,x) a "AT y-1,x
-1:" "
270 IF a#="k" THEN LET x=x+1:
LET y=y+1: LET a#=" "
280 LET x=x+(INKEY#="m" AND x<2
9)-(INKEY#="z" AND x>1)
290 RETURN
300 CLS: POKE 23658,0
310 IF t>hi THEN LET hi=t: PRI
NT AT 10,5: FLASH 1:"YOU HAVE TH
E HIGH "AT 11,5: INVERSE 1:"SCO
RE! PLEASE ENTER YOR NAME AFTER
THE TONE.": PAUSE 100: BEEP 1,-1
0: INPUT h#
320 CLS: PRINT AT 6,6:"Your sc
ore=#":t:"TAB 0:"High score=#":h
1:"TAB 10:"By ": FLASH 1:h#
330 INPUT ""Another go (Y/N)
":b#: IF b#="Y" THEN GO TO 4
340 IF b#<>"N" THEN GO TO 330
360 STOP

```





# GANGSTERS

**Y**OU ARE involved in a desperate shoot-out with the **Gangsters** in a car park. Faces appear in the darkness and you must shoot them with key "0". P J Irwin, of Bembridge, Isle of Wight, who wrote the game for the 16K Spectrum, says that anything more than 70 is a good score.

```

3 DEF FN m(x,y)=(x+y+ABS (x-y
)/2
5 DEF FN u(x)=(65536*PEEK 2367
4+256*PEEK 23673+PEEK 23672)/50
7 DEF FN t(x)=FN m(FN u(x),FN u
(x))
9 LET hs=0
10 PAPER 0: BORDER 0: INK 5: C
LS
15 GO SUB 9000
20 INPUT "Instructions?('ENTER
' y for yes)": LINE a$: IF CODE
a$=121 OR CODE a$=89 THEN GO SUB
800
30 RESTORE 200: DIM a(32): FOR
f=2 TO 30 STEP 2: READ a(f): NE
XT f
40 INPUT "'ENTER' Level (5=har
d to 1=easy)": lev: IF lev<1 OR l
ev>5 THEN GO TO 40
50 LET w=0: LET x=4: LET sc=0:
LET c=-1: LET g=15
60 PAPER 0: BORDER 0: INK 5: C
LS
70 CIRCLE 230,88,8: CIRCLE 230
,88,1.5
80 PLOT 250,113: DRAW -5,-5: D
RAW -25,0: DRAW 0,-20: DRAW 6,0:
DRAW 24,0,-3.3
90 INK 6: PLOT 148,100: DRAW 3
2,0,-0.8: DRAW -32,0,-0.8: DRAW
0,-40: DRAW 32,0,0.8: DRAW 0,40
100 PRINT AT 12,19:"oil"
110 INK 4: PLOT 0,119: DRAW 32,
0: DRAW 0,-8: DRAW -32,0: DRAW 0
,-8: DRAW 32,0: DRAW 0,-8: DRAW
-32,0: DRAW 0,-8: DRAW 32,0: DRA
W 0,24
120 PLOT 0,119: DRAW 0,-8: DRAW
8,0: DRAW 0,-8: DRAW -8,0: DRAW
0,-8: DRAW 0,0: DRAW 0,-8
130 PLOT 24,119: DRAW 0,-8: PLO

```

```

T 24,103: DRAW 0,-8
140 INK 2: PLOT 64,40: DRAW 40,
0,-2.5
150 POKE 23674,0: POKE 23673,0:
POKE 23672,0
160 INK 3: PRINT AT 2,11: INK 7
:"shoot out"
170 FOR x=1 TO 3: BEEP .05,50:
PAUSE 5: NEXT x
180 PRINT AT 10,15: INK 2:"B"
190 PRINT AT 21,3: INK 5:"Score
" : PRINT AT 21,21: INK 5:"High
"
200 LET a=FN t(x): IF a>60 THEN
GO TO 900
210 LET f=g-(INKEY$="5" AND g>0
)+(INKEY$="8" AND g<31)
220 IF f<>g THEN PRINT AT 10,g:
" "
230 IF f<>g THEN PRINT AT 18,f:
INK 2:"B": LET g=f
240 IF INKEY$="0" THEN GO SUB 7
50
250 IF sc>hs THEN LET hs=sc: LE
T w=1
260 PRINT AT 21,9: INK 5:sc: PR
INT AT 21,26: INK 5: FLASH w:hs
500 LET c=c+1: IF c=23-lev*3 TH
EN LET c=0: PRINT AT a(x),x: PAP
ER 0:" "
510 IF c=0 THEN LET x=INT (RND*
15)+1: LET x=x*2: PRINT AT a(x),
x:"A"
520 GO TO 200
750 IF g<>x THEN BEEP .5,-20: R
ETURN
760 FOR c=7 TO 0 STEP -1: PRINT
AT a(x),x: INK c:"A": BEEP .05,
c*INT (RND*7)+1: NEXT c
770 PRINT AT a(x),x: PAPER 0:"
"
780 LET sc=sc+lev: RETURN

```

```

800 INK 6: CLS: PRINT "The ide
a of the game is to shoot""The
outlaws 'A' who appear""from
behind the wall,car,rock""and
oil drum, by moving your gun"

```

```

805 PRINT "'B' using the curso
r keys 5 & 8""Fire using '0'
your score is ""dependent on y
our level"

```

```

810 PRINT "'Note that it is not
necessarily""Possible to hit
every time""You have one minu
te"" Press 'ENTER' to star
t"

```

```

820 LET a$=INKEY$: IF CODE a$=1
3 THEN RETURN
830 GO TO 820
900 FOR x=0 TO 21: PRINT AT x,0
: OVER 1: INK 7:"(32*1=8)": BEEP
.01,x*2: NEXT x
910 PRINT AT 19,11: FLASH 1: PA
PER 7: INK 4:"Game over"
920 PRINT AT 21,3: PAPER 7:"Sco
re:"sc
930 PRINT AT 21,21: PAPER 7:"Hi
gh:"hs
940 INPUT "Another go?('ENTER'
n for no)": LINE a$: IF CODE a$=
110 OR CODE a$=70 THEN STOP
950 FLASH 0: GO TO 40
2000 DATA 6,8,16,14,13,14,17,10,
8,7,9,5,6,7,7
9000 RESTORE 9020: FOR x=USR "a"
TO USR "b"+7: READ a: POKE x,a:
NEXT x
9010 RETURN
9020 DATA 230,16,146,16,92,56,13
0,124
9030 DATA 0,0,10,16,56,56,254,25
4

```



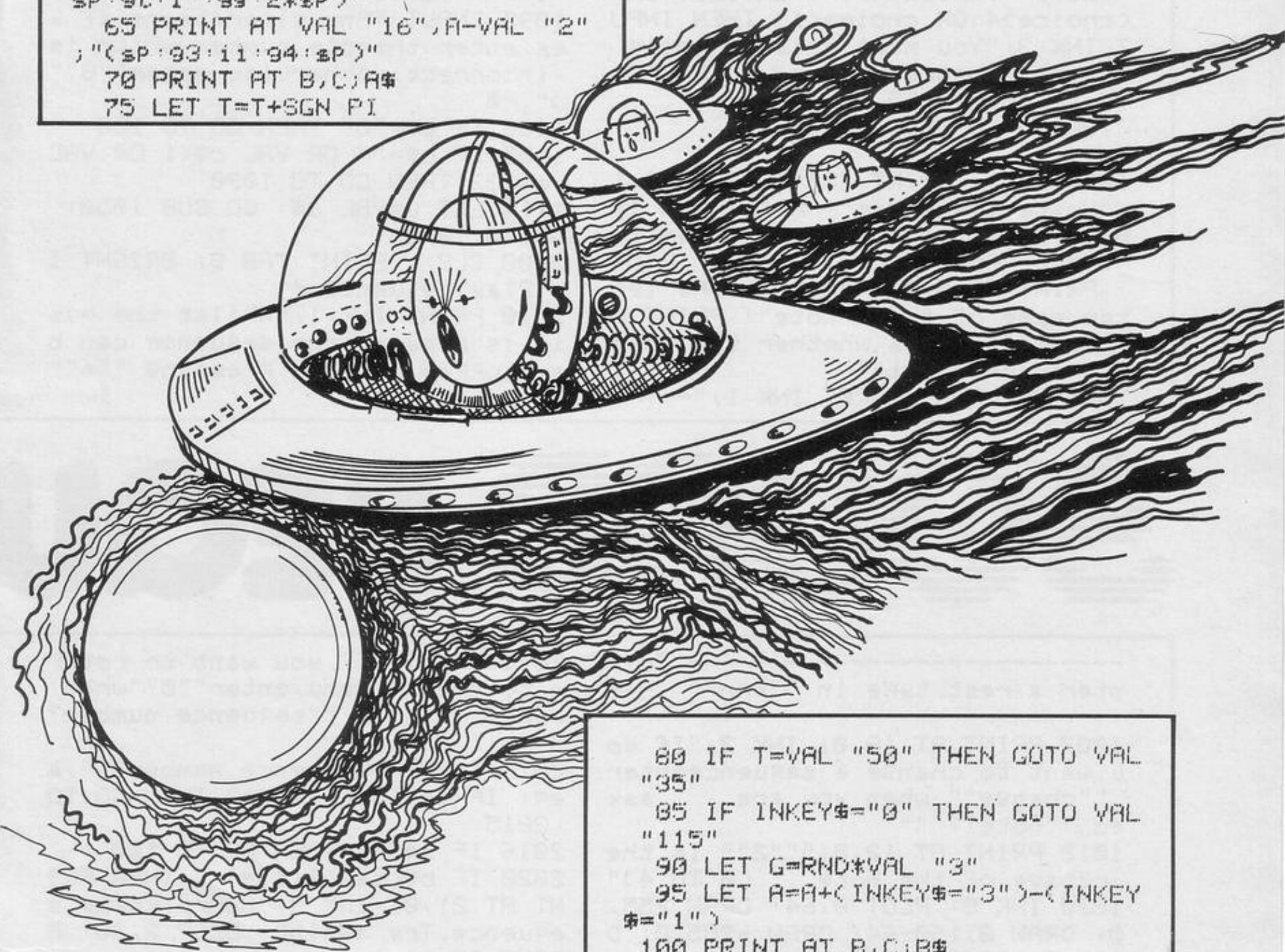
```

10 REM "E"
15 LET S=PI-PI
20 LET A=VAL "12"
25 LET B=PI-PI
30 LET C=VAL "3"
35 CLS
40 LET T=6
45 LET B=B+VAL "2"
50 IF B=VAL "16" THEN PRINT S;
" HITS";X
55 LET A$="(2*SP:99:i":9t:SP:9
t:i":99:SP:99:i":9t:SP:9t:i":99:
SP:99:i":9t:2*SP)"
60 LET B$="(2*SP:9t:i":99:SP:9
9:i":9t:SP:9t:i":99:SP:99:i":9t:
SP:9t:i":99:2*SP)"
65 PRINT AT VAL "16",A-VAL "2"
;"(SP:93:i1:94:SP)"
70 PRINT AT B,C;A$
75 LET T=T+SGN PI

```

**T**HE INVADERS descend slowly, speeding as you fire at them. Move left with "1", right with "3", and fire with "0". How many aliens can you hit before you are annihilated?

81 **Invaders** was written by Gary Shields for the 1K ZX-81.



```

80 IF T=VAL "50" THEN GOTO VAL
"35"
85 IF INKEY$="0" THEN GOTO VAL
"115"
90 LET G=RND*VAL "3"
95 LET A=A+(INKEY$="3")-(INKEY
$="1")
100 PRINT AT B,C;B$
105 LET C=C+((G>1.5) AND C<VAL
"7")-((G<1.5) AND C>SGN PI)
110 GOTO VAL "65"
115 PRINT AT B,A;"+"
120 IF A$(A-C)+SGN PI<>"(1)"
THEN GOTO VAL "65"
125 LET A$(A-C TO A-C+2)=" "
130 LET B$(A-C TO A-C+2)=" "
135 PRINT AT B,A-SGN PI;"***"
140 LET S=S+SGN PI
145 IF A$="
" THEN GOTO VAL "55"
150 GOTO VAL "65"

```

# 81 INVADERS



```

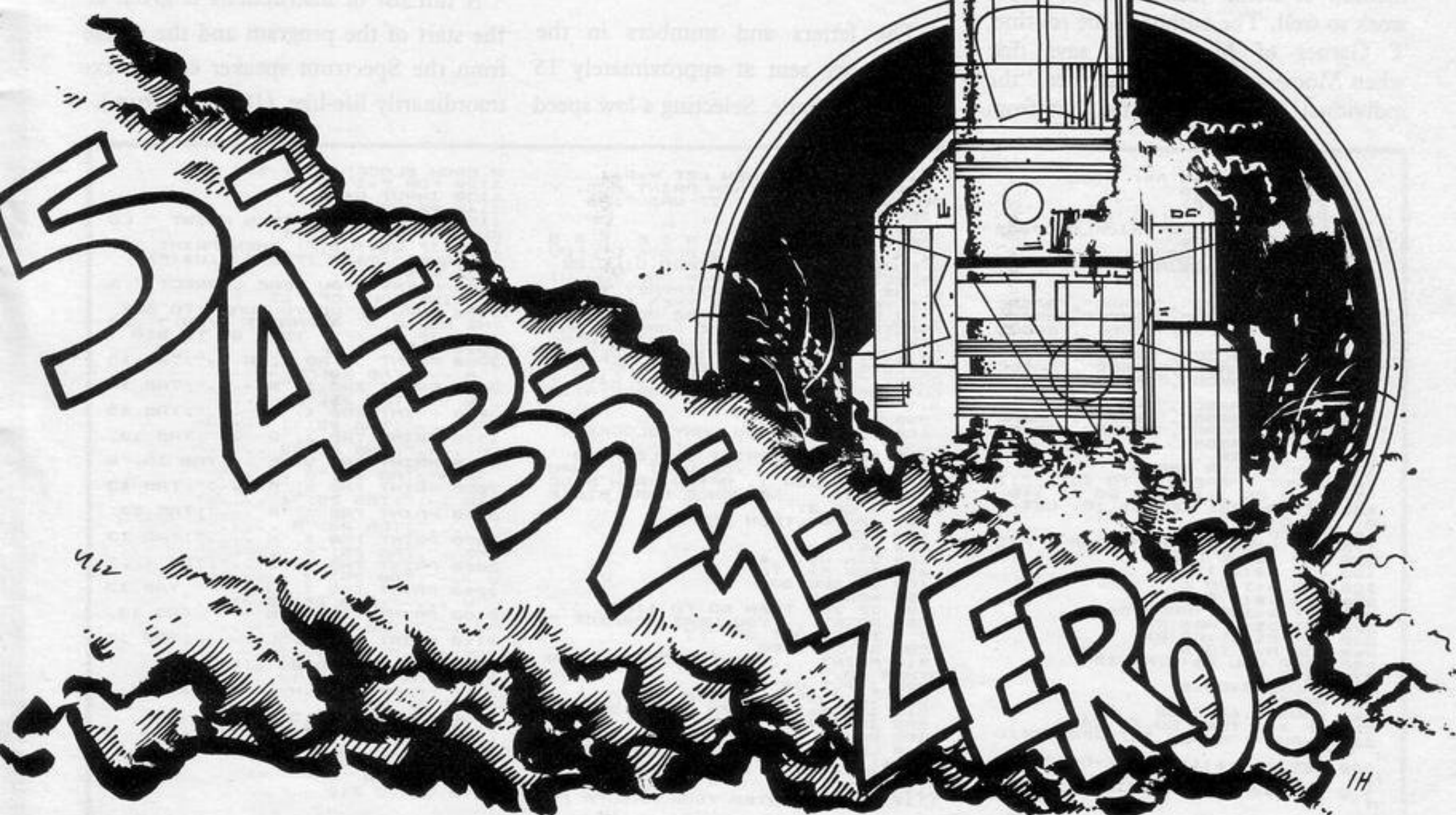
20 LET T=120
50 PRINT AT 15,21;"A"
60 PRINT TAB 21;"(inverse space)"
70 PRINT TAB 21;"(inverse space)"
80 PRINT TAB 20;"(graphic T,space,graphic Y)"
85 PRINT "(inverse space,twenty two graphic Gs)"
100 FOR N=0 TO 19
105 PRINT AT 19,N;"(inverse space)"
110 LET A=INT (RND*10)
120 LET B=INT (RND*100)
130 PRINT AT 21,6,A+B;" - ";B;" = "
140 PRINT AT 19,27,T;" "
150 LET A#=INKEY#
160 PRINT ,,,A#;"(inverse space)" AND A#=""
170 IF A#=STR$ A THEN NEXT N
180 LET T=T-1
190 IF N<>20 THEN GOTO 140+(T<0)*140
200 FOR N=1 TO 50
210 PRINT AT 18,21;" "
220 PRINT AT 18,21;"V"
230 NEXT N
240 POKE 16418,5
250 FOR N=1 TO 19
260 SCROLL
270 NEXT N

```

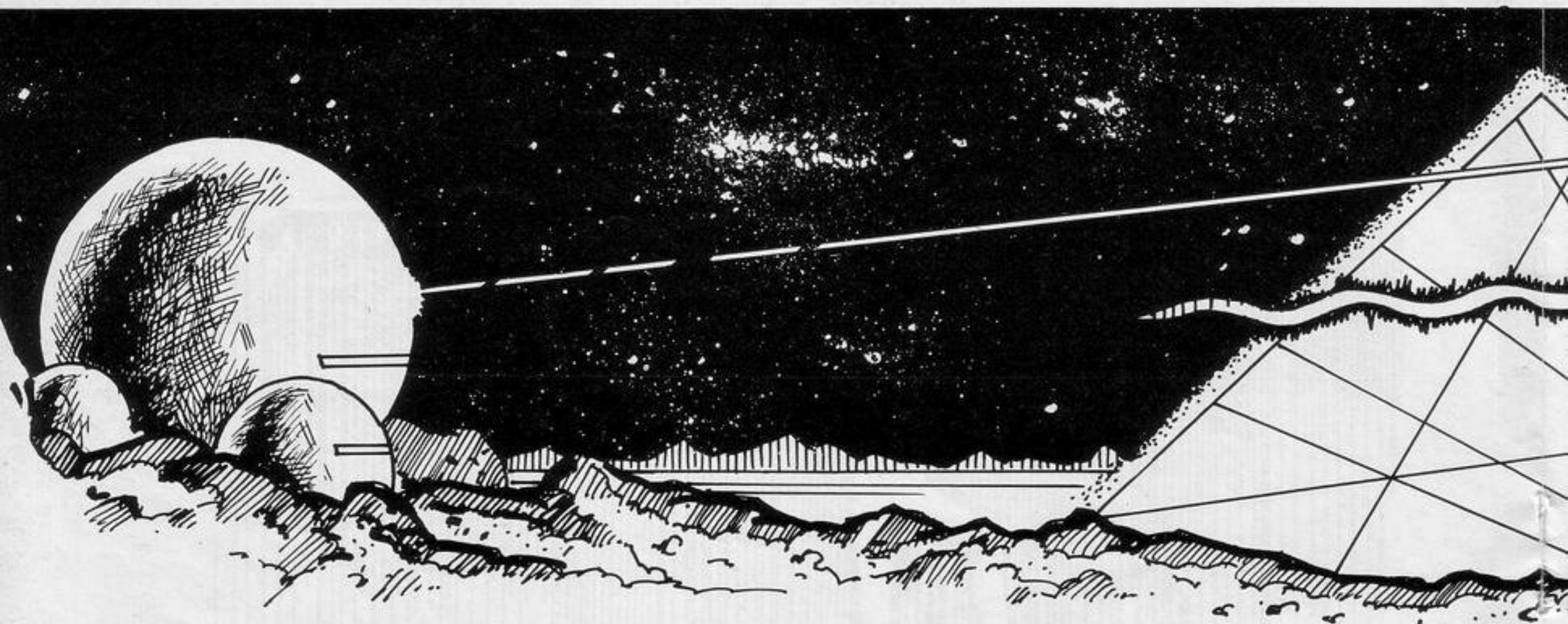
**T**AKE OFF for the 1K ZX-81, which was sent by C Robinson of Slough, Berkshire challenges your mathematical speed and accuracy. A rocket is on the launch pad and time is ticking away. Fuel must be delivered to the rocket along the underground pipeline by answering 20 questions correctly before the time reaches zero.

If your skill at subtraction is good enough for the test the rocket will blast into outer space; if not, it will be left stranded. Lower-case letters in brackets indicate graphics instructions.

# TAKE OFF







# REBOUND

```

10 PRINT AT 10,12;"REBOUND": B
EEP .5,20: BEEP .4,15: PAUSE 150
PRINT AT 10,9;"by PHIL WILLCOX"
BEEP .05,6: BEEP .05,4: BEEP
.05,2: BEEP .05,0: BEEP .05,4: P
AUSE 100
15 RANDOMIZE
20 PRINT AT 10,8;"INSTRUCTIONS"
? (y/n)": BEEP .1,20: BEEP .1,10
PAUSE 0
30 IF INKEY$="y" THEN GO SUB 8
500
50 LET hs=0
60 RESTORE 9000: GO SUB 9000
70 PAPER 0: BORDER 5: INK 5: C
LS
80 FOR f=0 TO 31: PRINT AT 0,f
;"(isp)": NEXT f
90 FOR f=0 TO 31 STEP 31: FOR
q=1 TO 20: PRINT AT q,f;"(isp)":
NEXT q: NEXT f
100 LET k=0
110 FOR f=1 TO 9: FOR q=1 TO 9-
k
120 PRINT AT f,q;"(isp)"
130 NEXT q
140 LET k=k+1
150 NEXT f
160 LET k=0
170 FOR f=1 TO 9: FOR q=22+k TO
30

```

```

180 PRINT AT f,q;"(isp)"
190 NEXT q
200 LET k=k+1
210 NEXT f
220 PRINT AT 12,15;"(2*isp)": AT
13,14;"(4*isp)": AT 14,13;"(6*isp)"
AT 15,12;"(8*isp)"
230 FOR f=16 TO 20: FOR q=11 TO
20: PRINT AT f,q;"(isp)": NEXT
q: NEXT f
240 LET k=10: LET p=21
250 FOR f=1 TO 10
260 PRINT AT f,k;"(1a)": AT f,p;
"(1b)"
270 LET k=k-1: LET p=p+1
280 NEXT f
290 LET k=14: LET p=17
300 FOR f=12 TO 15
310 PRINT AT f,k;"A": AT f,p;"B"
320 LET k=k-1: LET p=p+1
330 NEXT f
340 LET s=0: LET miss=0: LET c=
1
350 IF s>hs THEN LET hs=s
360 PAPER 5: INK 0: PRINT AT 0,
0;"SCORE ":s,"HI SCORE ":hs: AT 1
7,12;"ESCAPED": AT 19,15;miss
370 LET h=INT (21+9*RND): LET v
=21
380 IF c<20 THEN LET a$="E": LE
T co=2

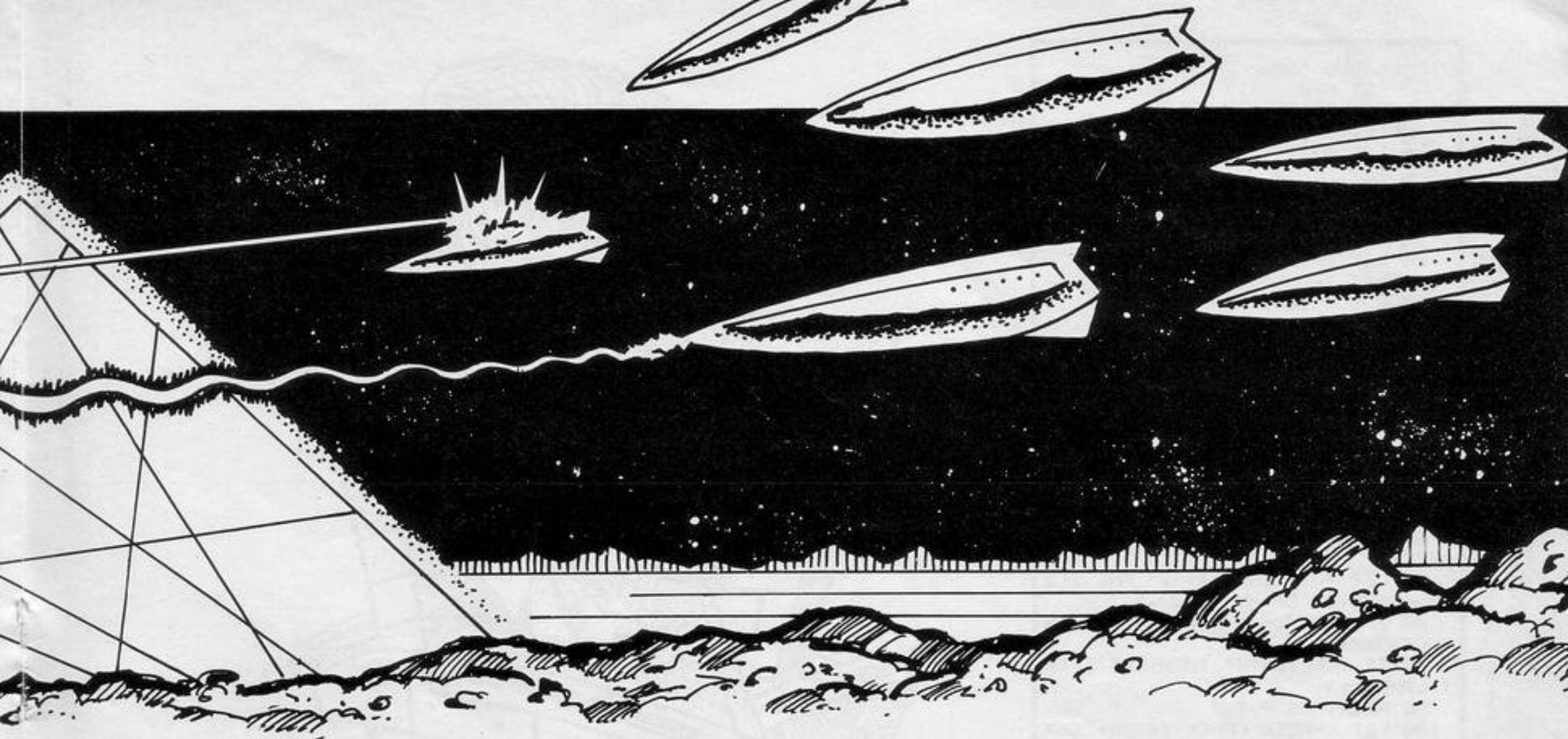
```

```

390 IF c>20 THEN LET a$="D": L
ET co=6
400 LET q=5
410 PRINT : PAPER 0: AT 21,1)"
"
420 PAPER 0: INK 7: PRINT AT 21
,9)" C "
430 PRINT INK co: AT v,h;a$
440 IF INKEY$="b" THEN GO SUB 7
900: IF q=30-h THEN GO TO 7100
450 LET q=q+(INKEY$="8" AND q<9
)-(INKEY$="5" AND q>0)
460 LET vy=INT (RND*60-c)+1
470 IF vy<2 THEN PRINT AT v,h)"
": LET v=v-1
480 IF v=12 THEN GO TO 7500
500 IF RND<.15 AND h<30 THEN PR
INT AT v,h)" ": LET h=h+1: GO TO
410
510 IF RND<.3 AND h>21 THEN PRI
NT AT v,h)" ": LET h=h-1
520 GO TO 410
7100 FOR q=1 TO 3: PRINT AT v,h;
FLASH 1: BRIGHT 1: INK 2)"*": B
EEP .001,50: BEEP .001,40: BEEP
.001,20: BEEP .002,1: NEXT q
7110 PRINT AT v,h)" "
7115 LET s=s+5+c*3: LET c=c+1
7120 GO TO 350
7500 PRINT FLASH 1: BRIGHT 1: AT

```





# REBOUND

```

v,h:"*": BEEP .05,-2: BEEP .05,-
12: BEEP .02,-40: PRINT AT v,h:"
": LET miss=miss+1:
7505 IF miss=5 THEN GO TO 7600
7510 GO TO 350
7600 CLS: PRINT AT 10,13:"SORRY
!": AT 12,10:"YOU LET TOO": AT 14,
10:"MANY ESCAPE": PAUSE 50: PRIN
T AT 5,1:"You scored "s: FOR f=
30 TO -30: BEEP .0025,f: NEXT f:
PRINT AT 20,3:"Press a key for
another go"
7610 PAUSE 0
7620 GO TO 60
7900 BEEP .01,1: BEEP .01,15: BE
EP .01,35
8000 BEEP .01,1: BEEP .01,15: BE
EP .01,35
8010 PLOT 9*8+12,9: DRAW 0,75+9*
8: BEEP .01,30: PLOT OVER 1,9*8+
12,9: DRAW OVER 1,0,75+9*8: BEEP
.015,35
8020 PLOT 9*8+12,9+(75+9*8): DRA
W 232-9*16,0: PLOT OVER 1,9*8+12
,9+(75+9*8): DRAW OVER 1,232-9*1
6,0
8030 PLOT (9*8+12)+(232-9*16),9+
(75+9*8): DRAW 0,-(75+9*8): BEEP
.0075,20: PLOT OVER 1,(9*8+12)+
(232-9*16),9+(75+9*8): DRAW OVER
1,0,-(75+9*8)
8040 RETURN

```

```

8500 CLS: PRINT TAB 8:"INSTRUCT
IONS""Shoot the      s as they
try to escape""Move your cosm
ic cannon with the ~5~ and ~8~ k
eys, and Press ~b~to fire""The
y become progressively harder to
hit - but score more points as
they do"
8510 PRINT ""The game ends if y
ou let five escape (they disap
pear into hyperspace at a ce
rtain altitude)""Press
a key to play"
8520 PAUSE 0
8530 CLS: RETURN
8590 RETURN
9000 FOR f=144 TO 140
9010 FOR n=0 TO 7: READ z
9020 POKE USR CHR$ f+n,z: NEXT n
: NEXT f
9030 DATA 1,3,7,15,31,63,127,255
9031 DATA 128,192,224,240,248,25
2,254,255
9032 DATA 24,24,60,60,60,126,126
,126
9033 DATA 60,126,219,219,126,60,
66,129
9034 DATA 129,102,126,60,60,126,
102,129
9040 RETURN

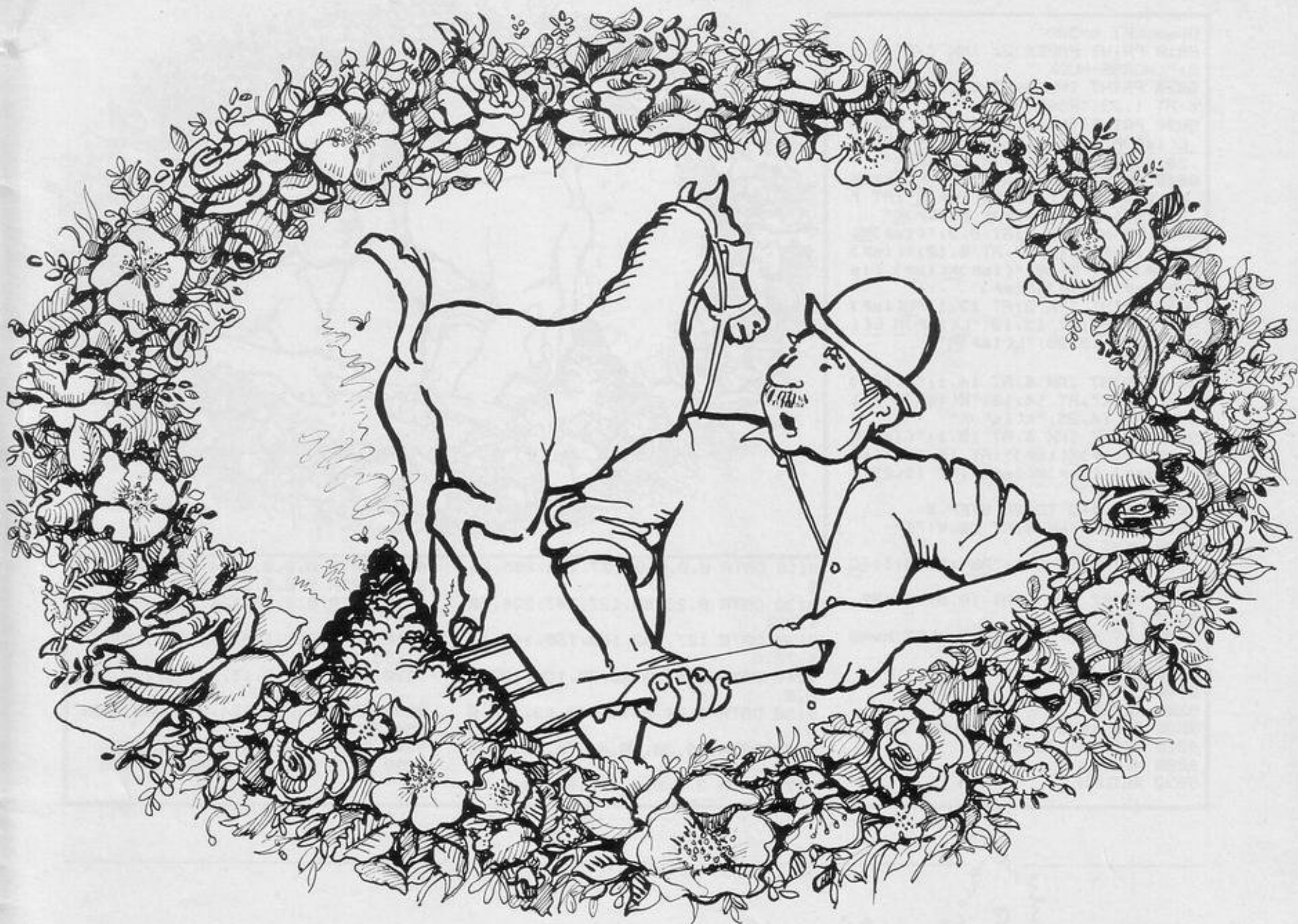
```

**S**HOOT THE missiles as they try to escape their planet's atmosphere on the right of the screen. If five escape into hyperspace they will destroy your home planet and the game will end. Your cosmic cannon is situated on the left of the screen. It moves left with "5", right with "8", and fires with "B". Its shots travel upwards, hit the top of the play area and ricochet down on the right. Skill is needed to aim them correctly.

**Rebound** was written for the 16K Spectrum by P J Willcox of Ely, Cardiff and is this month's program of the month. Willcox works in a local hospital and bought his Spectrum primarily for his children to use. He found the games which could be played on it captivating and began to write his own.

In the future he would like to write a program which would provide complete horoscopes. After that his plans are more optimistic. He would like to learn machine code and write a program which would make his fortune.





# GOOD For The ROSES

**Y**OU PLAY the part of an enthusiastic gardener, determined to make all your roses bloom in the time allowed. To do so you have sought

fertiliser and found a supplier in the form of a carhorse. Move yourself with the usual cursor keys to pick up the evil-smelling green lumps with a shovel and

place them at the foot of your rose stalks. **Good for the Roses** was written for the 16K Spectrum by P Greenwood of Torrisholme, Morecambe.

```

10 GO SUB 9000
20 GO SUB 8000
30 GO SUB 7000
40 GO SUB 6000
50 LET t=t-1
60 PRINT INK 3;AT 1,6;t;" "
70 IF t=0 THEN GO TO 4000
80 GO TO 30
4000 INPUT "PRESS ENTER TO PLAY
AGAIN";W#
4010 GO TO 20
5000 PRINT FLASH 1;AT 21,10;" WE
LL DONE "
5100 GO TO 4000
5500 PRINT AT hy-1,hhx;" " ;AT
hy,hhx;" AB ";AT hy+1,hhx;" CD
"; INK 2; FLASH 1; OVER 1;AT hy+
1,hhx+1;"NO"
5510 FOR a=0 TO -30 STEP -1
5520 BEEP .05,a
5530 NEXT a
5540 GO TO 4000
6000 LET x1=x+(INKEY#="8" AND x<
30)-(INKEY#="5" AND x>0)
6010 LET y1=y+(INKEY#="6" AND y<
19)-(INKEY#="7" AND y>3)
6020 IF y=y1 AND x=x1 THEN RETUR
N

```

```

6030 PRINT AT y,x;" ";AT y+1,x;"
"
6040 IF ATTR (y1,x1)>56 OR ATTR
(y1+1,x1)>56 THEN LET y1=y; LET
x1=x
6050 IF ATTR (y1+1,x1+1)>127 THE
N LET s=1; GO TO 6080
6060 IF ATTR (y1+1,x1+1)>56 THEN
LET y1=y; LET x1=x
6080 PRINT INK 1;AT y1,x1;"E";AT
y1+1,x1;"FG"
6090 IF s=1 THEN PRINT INK 4; OV
ER 1; FLASH 1;AT y1+1,x1+1;"H"
6100 IF ATTR (y1,x1+2)<>58 AND s
=1 AND y1=19 AND x1>0 THEN PRINT
INK 2;AT 19,x1+2;"J"; LET s=0;
LET r=r+1
6110 PRINT INK 3;AT 1,29;r
6120 IF r=10 THEN GO TO 5000
6130 LET x=x1; LET y=y1
6140 RETURN
7000 LET hx=hx+1
7010 IF hx=30 THEN LET hx=32
7020 IF hx=62 THEN LET hx=64
7030 IF hx=94 THEN LET hx=0
7040 IF hx<31 THEN LET hy=3; LET
hhx=hx
7050 IF hx>31 AND hx<63 THEN LET
hy=10; LET hhx=hx-32

```

```

7060 IF hx>63 THEN LET hy=17; LE
T hhx=hx-64
7070 IF hx=32 THEN PRINT AT 3,30
;" ";AT 4,30;" "
7080 IF hx=64 THEN PRINT AT 10,3
0;" ";AT 11,30;" "
7090 IF hx=0 THEN PRINT AT 17,30
;" ";AT 18,30;" "
7100 IF ATTR (hy,hhx+1)=57 OR AT
TR (hy+1,hhx+1)=57 THEN GO TO 55
00
7105 IF ATTR (hy,hhx+2)=57 OR AT
TR (hy+1,hhx+2)=57 THEN GO TO 55
00
7110 PRINT AT hy,hhx;" AB";AT hy
+1,hhx;" CD"
7115 IF hhx=0 THEN GO TO 7130
7120 IF RND>0.98 THEN GO SUB 750
0
7130 RETURN
7500 PRINT INK 4; FLASH 1;AT hy+
1,hhx;"H"
7510 FOR a=1 TO 20
7520 BEEP .01,-20; BEEP .01,-10
7530 NEXT a
7540 RETURN
8000 BORDER 5; CLS

```



```

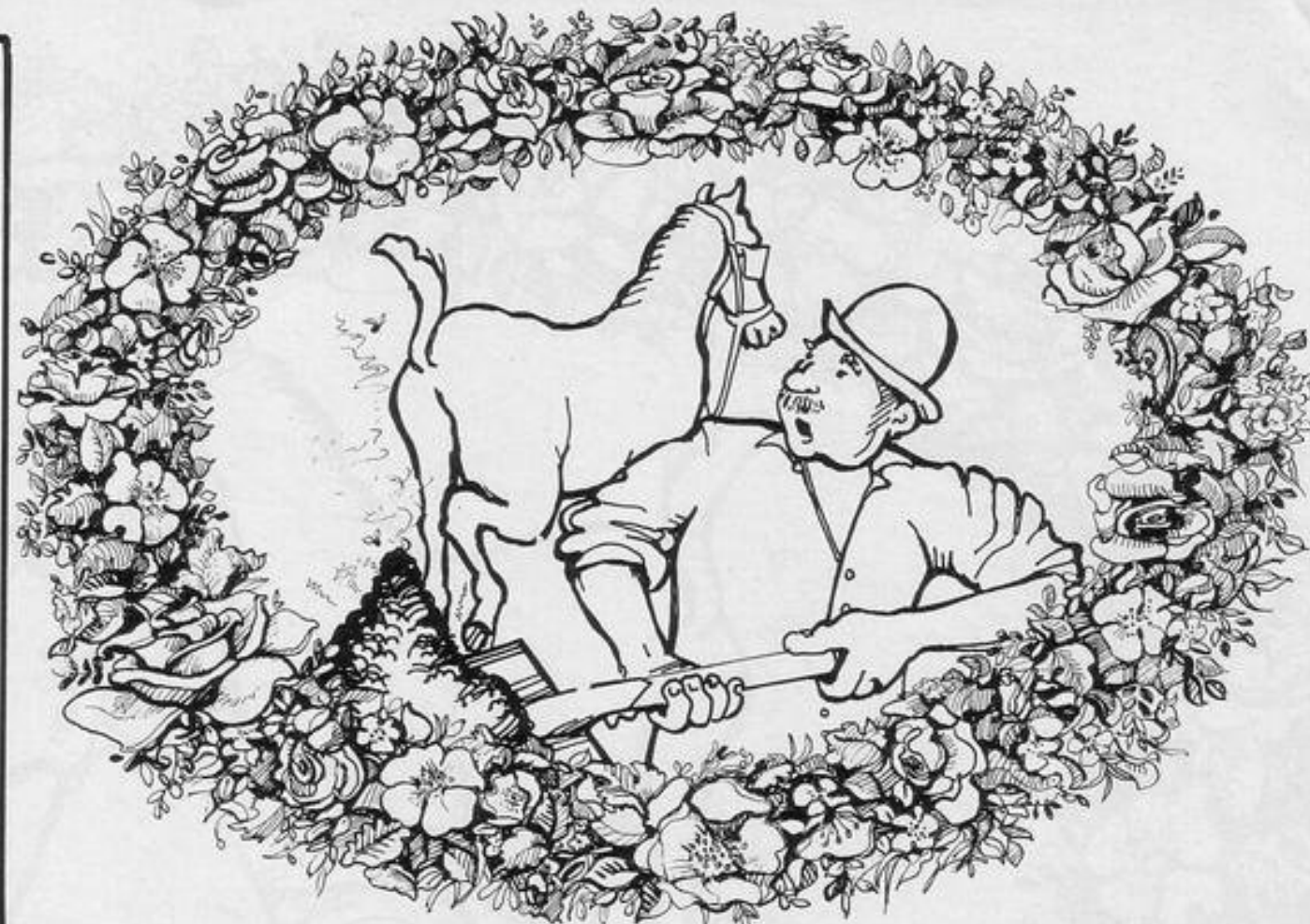
8005 LET t=500
8010 PRINT PAPER 2: INK 7: AT 0,1
0," HORSE-MUCK "
8020 PRINT INK 3: AT 1,1,"TIME="
t: AT 1,23:"ROSES=0"
8030 PRINT INK 2: AT 6,3:"L(LISP)M
L(LISP)M": AT 6,12:"L(LISP)M": AT 6
,20:"L(LISP)M L(LISP)M L(LISP)M"
8040 PRINT INK 6: AT 7,3:"K(LISP)K
K(LISP)K": AT 7,12:"K(LISP)K": AT 7
,20:"K(LISP)K K(LISP)K K(LISP)K"
8050 PRINT INK 6: AT 8,3:"(LISP)K(
LISP) (LISP)K(LISP)": AT 8,12:"(LISP)
K(LISP)": AT 8,20:"(LISP)K(LISP) (LISP)
K(LISP) (LISP)K(LISP)"
8060 PRINT INK 2: AT 13,1:"L(LISP)
M L(LISP)M": AT 13,13:"L(LISP)M L(LISP)
M": AT 13,25:"L(LISP)M"

```

```

8070 PRINT INK 6: AT 14,1:"K(LISP)
K K(LISP)K": AT 14,13:"K(LISP)K K(LISP)
K": AT 14,25:"K(LISP)K"
8080 PRINT INK 6: AT 15,1:"(LISP)K
(LISP) (LISP)K(LISP)": AT 15,13:"(LISP)
K(LISP) (LISP)K(LISP)": AT 15,25:"
(LISP)K(LISP)"
8090 FOR q=3 TO 30 STEP 3
8091 PRINT INK 4: AT 20,q,"I"
8092 NEXT q
8100 PRINT AT 3,1:"AB": AT 4,1:"C
D"
8110 PRINT INK 1: AT 19,0:"E": AT
20,0:"FG"
8120 LET x=0: LET y=19: LET hx=0
: LET hy=3
8130 LET r=0
8140 LET s=0
8200 RETURN
9000 FOR a=USR "a" TO USR "o"+7
9010 READ b: POKE a,b
9020 NEXT a
9030 RETURN

```



```

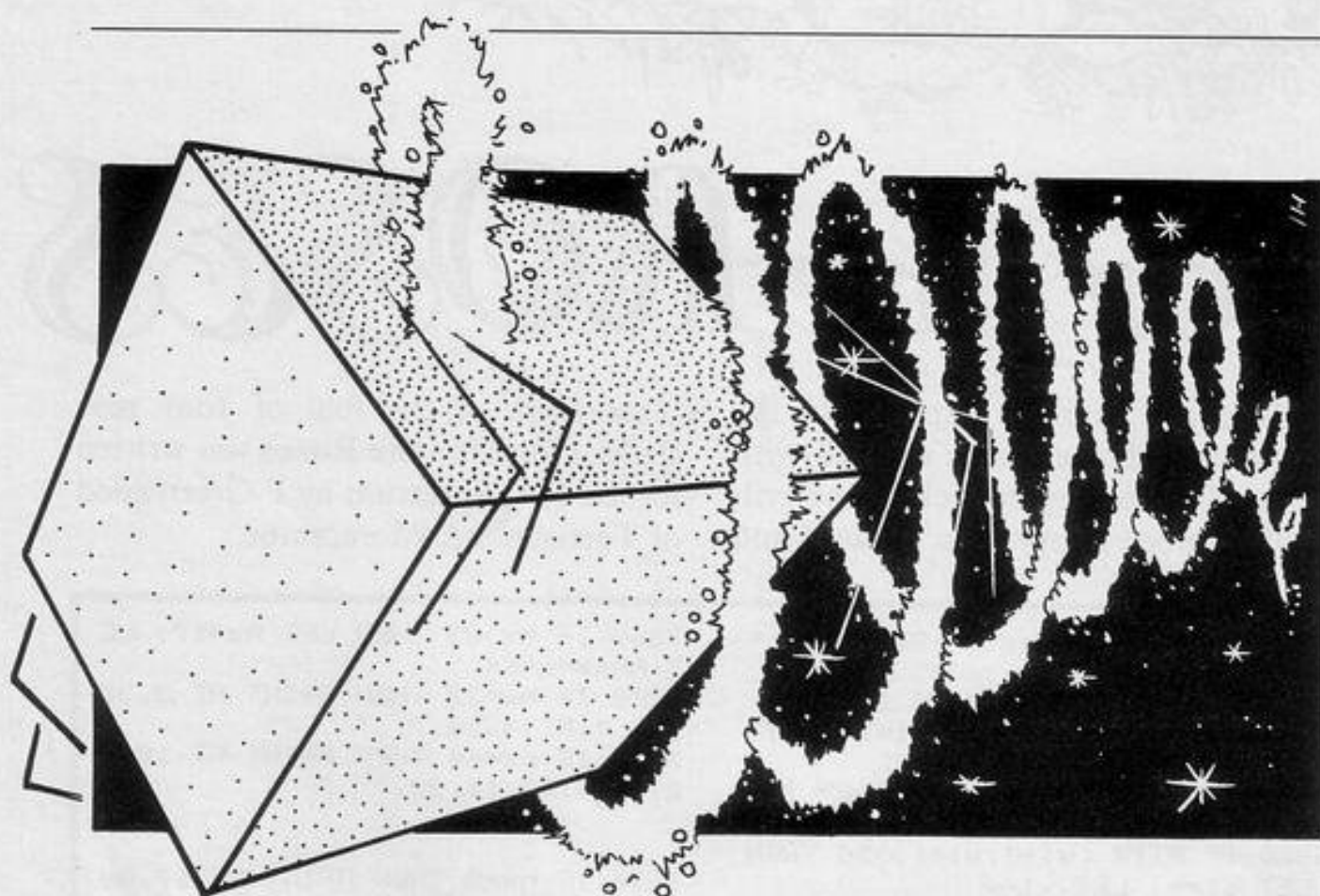
9110 DATA 0,0,0,0,127,255,255,25
5
9120 DATA 8,28,58,127,243,224,22
4,224
9130 DATA 127,192,160,160,144,14
4,72,0
9140 DATA 224,32,80,72,136,132,6
8,0
9150 DATA 0,56,56,16,48,88,148,8
4
9160 DATA 88,20,18,41,72,132,132
,198
9170 DATA 0,0,0,0,128,64,60,0

```

```

9180 DATA 0,0,0,0,24,60,0,0
9190 DATA 8,8,8,8,8,8,8,8
9200 DATA 0,0,60,126,126,255,189
,28
9210 DATA 255,195,195,195,195,19
5,195,195
9220 DATA 0,3,7,15,31,63,127,255
9230 DATA 0,192,224,240,248,252,
254,255
9240 DATA 0,0,0,0,0,3,183,255
9250 DATA 0,0,0,0,0,98,187,255

```



# 3D CUBE

```

1 LET d=80: LET e=20
2 LET a=80: LET b=100: LET c=
130
5 FOR z=0 TO 40
10 CLS: PLOT a,a: DRAW 50,0:
DRAW 0,50: DRAW -50,0: DRAW 0,-5
0
20 PLOT b,b: DRAW 50,0: DRAW 0
,50: DRAW -50,0: DRAW 0,-50
30 PLOT d,d: DRAW b-a,b-a
40 PLOT 130,d: DRAW e,b-a
50 PLOT d,130: DRAW b-a,e
60 PLOT 130,130: DRAW e,e
70 LET b=b-1: LET e=e-1: LET c
=c+1
80 PAUSE 10
90 NEXT z
100 LET d=80: LET e=20

```

```

102 LET a=80: LET b=60: LET c=9
0
105 FOR z=0 TO 40
110 CLS: PLOT a,a: DRAW 50,0:
DRAW 0,50: DRAW -50,0: DRAW 0,-5
0
120 PLOT b,b: DRAW 50,0: DRAW 0
,50: DRAW -50,0: DRAW 0,-50
130 PLOT d,d: DRAW b-a,b-a
140 PLOT 130,d: DRAW -e,b-a
150 PLOT d,130: DRAW b-a,-e
160 PLOT 130,130: DRAW -e,-e
170 LET b=b+1: LET e=e-1: LET c
=c-1
180 PAUSE 10
190 NEXT z

```

THE GRAPHICS on a 16K Spectrum are limited but they can be used for far more than variations on a space invader. Ashley Munson of Watton-at-Stone, Hertfordshire has written **3D Cube** which draws a cube on the screen and rotates it.

This creation of large three-dimensional characters seems to be an area neglected by Spectrum programmers. We would like to see programs generating or utilising this form of graphics.



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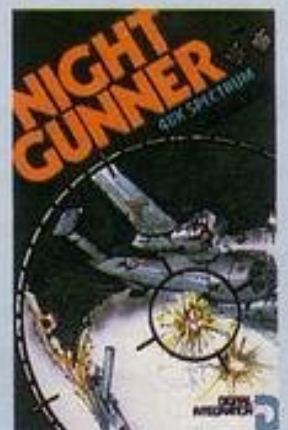
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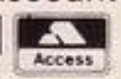
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FOR THOSE studying the rudiments of musical theory, Paul Wakefield of Woodbridge, Suffolk has written a 16K ZX-81 program, **Take Note**. A musical stave is printed on the screen and you must name each note as it appears. Notes are preceded by either the treble or the bass clef.

# TAKE NOTE

```

1 REM take note
2 RAND
3 PRINT "WHAT IS YOUR NAME?"
4 INPUT N$
5 CLS
10 FAST
15 FOR Y=10 TO 18 STEP 2
20 FOR X=1 TO 30
30 PRINT AT Y,X;"(96)"
40 NEXT X
50 NEXT Y
60 LET CLEF=INT (RND*2+1)
70 IF CLEF<>1 THEN GOSUB 600
80 IF CLEF=1 THEN GOSUB 700
100 SLOW
300 FOR M=7 TO 30 STEP 3
305 LET N=INT (RND*11+1)
310 PRINT AT 20-N,M;"(1SP)"
320 PRINT AT 21-N,M;"(1SP)"
330 PRINT AT 1,1;"WHAT NOTE IS THIS, "N$;"?"
340 INPUT A$
350 IF N+P<5 THEN GOTO 400
351 IF N>9 AND P=2 THEN GOTO 365
360 IF CODE A$=33<>N+P THEN GOT
0 500
361 GOTO 370
365 IF CODE A$=28<>N THEN GOTO
500
370 PRINT AT 8,M;A$
380 NEXT M
390 GOTO 550
400 LET N1=N+7
410 IF CODE A$=33<>N1+P THEN GO
TO 500
420 PRINT AT 8,M;A$
430 NEXT M
440 GOTO 550
500 PRINT AT 1,1;"NOT QUITE RIG
HT. TRY AGAIN."
510 GOTO 340
550 CLS
555 PRINT AT 1,1;"WELL DONE "N
$
560 PRINT "WOULD YOU LIKE SOME
MORE?"
561 INPUT Z$
565 IF CODE Z$<>62 THEN GOTO 90
0
566 CLS
570 GOTO 10
600 PRINT AT 11,1;"(93:97:94:SP
:94)"
610 PRINT AT 12,1;"(9W:96:94)"
620 PRINT AT 13,1;"(97:SP:98:SP
:94)"
630 PRINT AT 14,3;"(94)"
640 PRINT AT 15,2;"(93:91)"
650 PRINT AT 16,2;"(94)"
660 PRINT AT 17,1;"(98)"
670 PRINT AT 18,1;"(9W)"
680 LET P=2
690 RETURN
700 PRINT AT 8,3;"(9t:94)"
710 PRINT AT 9,3;"(95:99)"
720 PRINT AT 10,3;"(9W:94)"
730 PRINT AT 11,3;"(2*95)"
740 PRINT AT 12,3;"(1SP)"
750 PRINT AT 13,2;"(93:95)"
760 PRINT AT 14,2;"(2*9W)"
770 PRINT AT 15,1;"(9t:98:9e:94
)"
780 PRINT AT 16,1;"(3*9W:94)"
790 PRINT AT 17,1;"(95:9W:95:98
)"
800 PRINT AT 18,1;"(94:96:9W:9t
)"
810 PRINT AT 19,3;"(95)"
820 PRINT AT 20,1;"(93:91:95)"
830 PRINT AT 21,1;"(92:96:91)"
840 LET P=0
850 RETURN
900 CLS
910 PRINT AT 10,1;"GOODBYE "N$
930 STOP

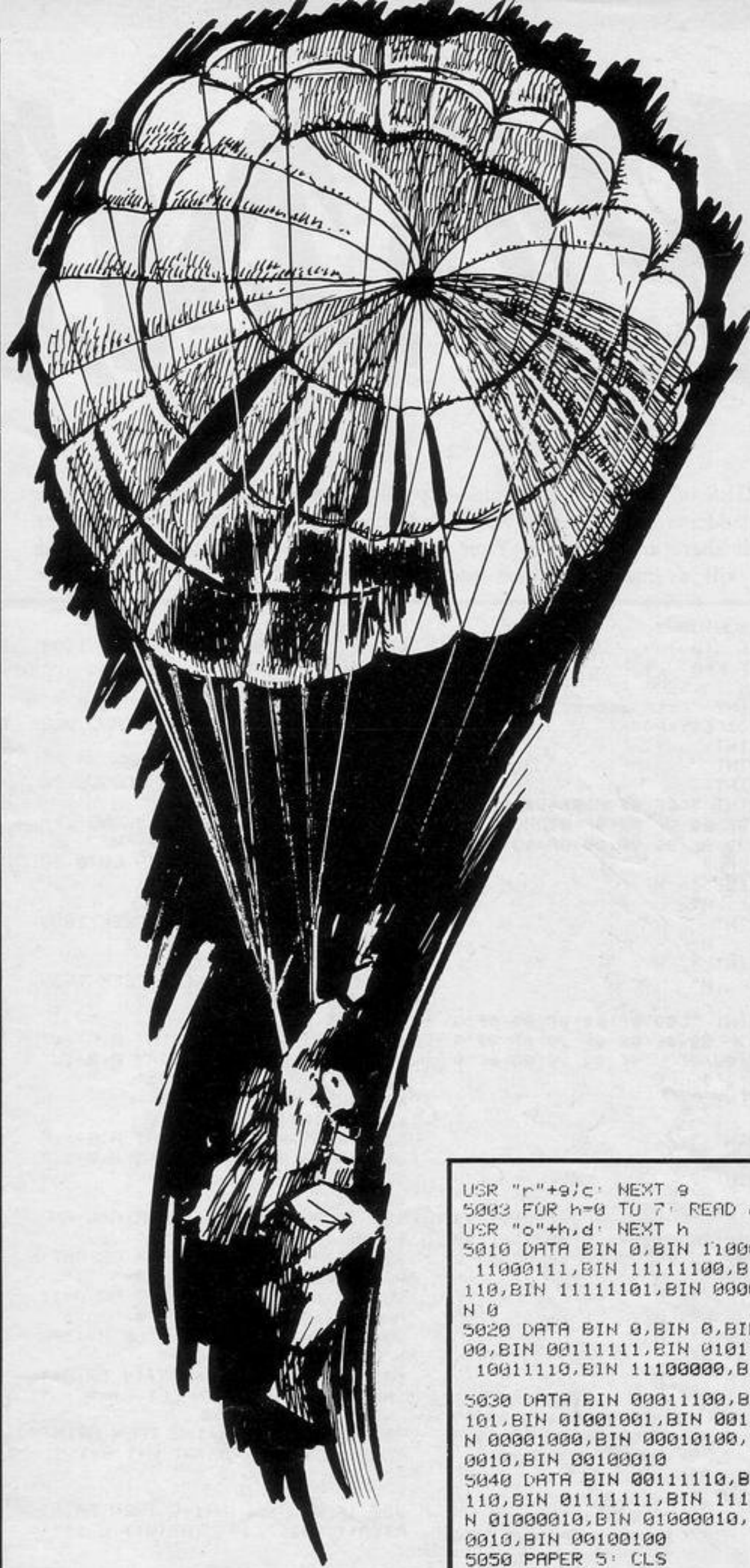
```



```

1 REM "drop"
2 GO SUB 5000
3 LET p$=" 0 "
4 LET sc=0: LET n=2: LET l=3:
LET i=3: LET cs=120
5 LET t=INT (RND*31)
6 IF t>27 THEN GO TO 2: IF t<
2 THEN GO TO 2
7 LET g$="(96*isp)"
8 LET m$=" R "
9 LET a$=" PT "
10 INPUT "what speed? ";s
11 PRINT AT 19,0: INK 4: g$
12 IF s>10 THEN GO TO 10
20 PRINT AT 21,3: "Press any ke
y to start"
40 PAUSE 0
41 PAUSE 20: CLS : FOR e=10 TO
1 STEP -1
42 LET t=INT (RND*30)
43 CLS : PRINT AT 0,0: "SCORE="
;sc: " LIVES=";l: " DROPS=";e
45 LET a=n: LET b=0
47 PRINT AT 10,t: INK 0: "XXX"
49 REM **PLANE**
50 PRINT AT a,b: a$: PAUSE s
51 PRINT AT 19,0: INK 4: g$
60 LET b=b+1: IF b>30 THEN PRI
NT AT 10,7: "out of time": PAUSE
40: CLS : PRINT AT 19,0: INK 4: g$
$: PRINT AT 10,t: INK 0: "XXX": G
O TO 3000
70 IF INKEY$="0" THEN GO TO 10
80
80 GO TO 50
999 REM **FALL**
1000 LET c=a: LET d=b
1002 PRINT AT 10,t: INK 0: "XXX"
1010 PRINT AT c,d: m$: AT c-1,d+1:
" "
1013 IF INKEY$="9" THEN GO TO 10
30
1015 PAUSE 3
1020 LET c=c+1: IF c>10 THEN GO
TO 3000
1030 GO TO 1010
1039 IF c>17 THEN GO TO 1002
1040 LET z=c
1041 PRINT AT c,d: P$: TAB d:m$: AT
c-1,d+1: " " FOR f=1 TO 50: NEX
T f
1042 PRINT AT c,d+1: " "
1043 LET c=c+1
1045 IF c=17 AND d=t THEN GO TO
2000
1046 IF c>17 THEN GO TO 3000
1050 LET d=d+(INKEY$="8")-(INKEY
$="5"): IF d>30 THEN LET d=d-1
1060 IF d<0 THEN LET d=d+1
1070 GO TO 1041
2000 PRINT AT 17,t:m$: BEEP .05,
10
2010 LET sc=sc+z
2015 PAUSE 50
2020 NEXT e
2998 IF l=i AND sc>=cs THEN LET
l=l+1: GO TO 4200
2999 REM **LIVES**
3000 LET l=l-1
3001 IF l=0 THEN GO TO 4000
3002 BEEP .5,-10
3010 NEXT e
4000 PRINT AT 19,0: INK 4: g$: PR
INT AT 0,0: "SCORE=";sc: " LIVES="
;l+1: AT 0,19: "DROPS=";e+1: PRI
NT AT 15,10: "GAME OVER"
4001 FOR g=5 TO -5 STEP -1: BEEP
.05,g: NEXT g: STOP
4200 LET n=n+2: FOR z=1 TO 20: B
EEP .01,z+1: BEEP .01,z-1: NEXT
z: IF a>10 THEN PRINT AT 10,0: "y
ou've successfully finished your
mission": STOP
4201 LET i=i+1: LET cs=cs
4205 LET a=10: GO TO 20
5000 FOR f=0 TO 7: READ a: POKE
USR "p"+f,a: NEXT f
5001 FOR n=0 TO 7: READ b: POKE
USR "t"+n,b: NEXT n
5002 FOR g=0 TO 7: READ c: POKE

```



```

USR "r"+g/c: NEXT g
5003 FOR h=0 TO 7: READ d: POKE
USR "o"+h,d: NEXT h
5010 DATA BIN 0,BIN 11000000,BIN
11000111,BIN 11111100,BIN 11111
110,BIN 11111101,BIN 00000111,BI
N 0
5020 DATA BIN 0,BIN 0,BIN 111000
00,BIN 00111111,BIN 01011111,BIN
10011110,BIN 11100000,BIN 0
5030 DATA BIN 00011100,BIN 01011
101,BIN 01001001,BIN 00111110,BI
N 00001000,BIN 00010100,BIN 0010
0010,BIN 00100010
5040 DATA BIN 00111110,BIN 00111
110,BIN 01111111,BIN 11111111,BI
N 01000010,BIN 01000010,BIN 0100
0010,BIN 00100100
5050 PAPER 5: CLS
5060 RETURN

```

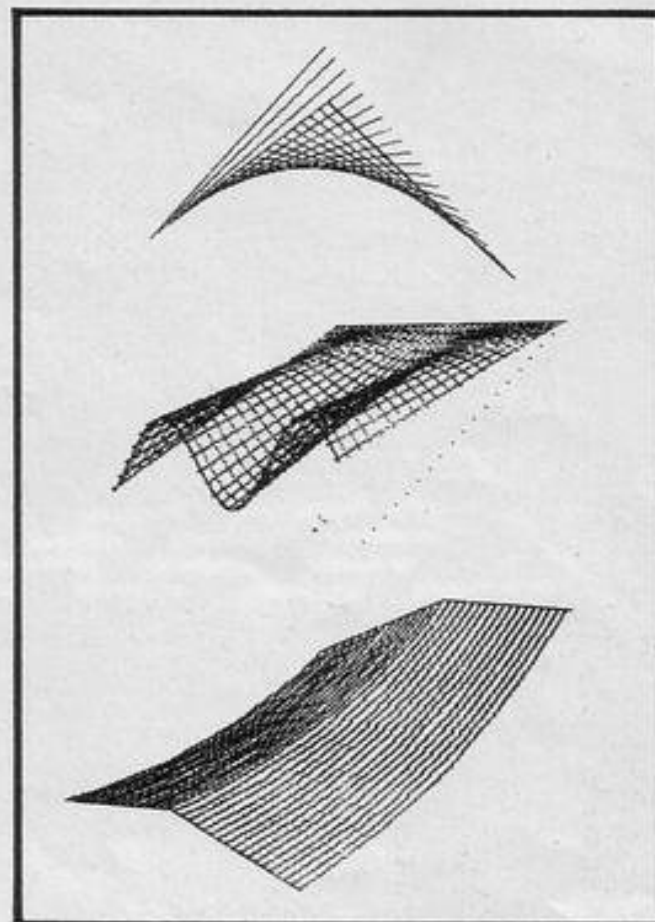
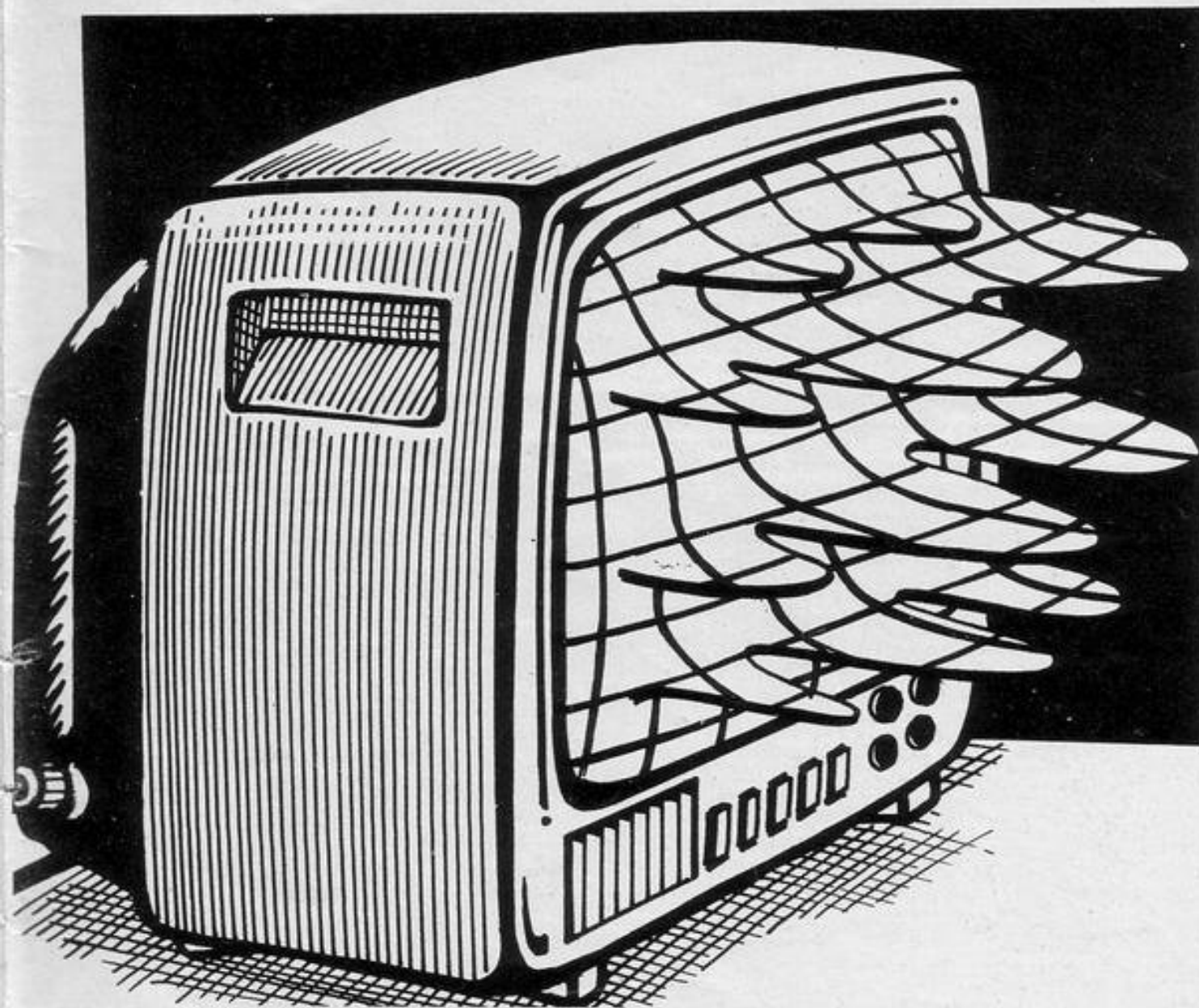
# PARACHUTE DROP

AS THE aircraft flies across the screen, jump by pressing 0. Pressing 9 opens your parachute, allowing you to steer with keys 5 and 8. Your aim is to land on the randomly-placed landing pad each time and the later you open your parachute the more points you gain.

After you have dropped 10 times, if your score is more than 120 and you still have five lives remaining the game will continue with the aircraft flying slightly lower.

**Parachute Drop** was written for the Spectrum by Andrew Burton of Work-sop, Notts.





# CONTOUR

```

5 REM ***3D*BY*TIM*CLOSS
10 PLOT 127,0: DRAW 0,175: PLO
T 0,87: DRAW 255,0
20 DIM L(127): DIM H(127)
30 LET A=43
35 LET D=-1
40 FOR T=1 TO 2
50 FOR G=1 TO 127
60 IF INKEY$="9" THEN PLOT G+D
A: GO TO 100
70 IF INKEY$="8" THEN LET A=A+
1: PLOT G+D,A: GO TO 100
75 IF INKEY$="5" THEN LET A=A-
1: PLOT G+D,A: GO TO 100
80 IF INKEY$="7" THEN LET A=A+
.5: PLOT G+D,A: GO TO 100
90 IF INKEY$="6" THEN LET A=A-
.5: PLOT G+D,A: GO TO 100
91 IF INKEY$="1" THEN GO TO 10
00
95 GO TO 60
100 IF T=1 THEN LET L(G)=A: GO
TO 115
110 LET H(G)=A
115 NEXT G
130 LET A=131: LET D=127: NEXT
T
140 OVER 1: PLOT 127,0: DRAW 0,
175: PLOT 0,87: DRAW 255,0: OVER
0
145 INPUT "<1> SOUTH TO NORTH o
r
(2) WEST TO EAST ?"
10
146 IF O=1 THEN INPUT "RADIAN
S ?": D: GO TO 150
147 IF O=2 THEN GO TO 200
148 GO TO 145
150 FOR A=0 TO 126 STEP 4
160 PLOT A,L(A+1)
170 DRAW 120,80+((H(A+1)-88)-L(
A+1)),D
180 NEXT A
190 INPUT "WEST TO EAST ASWELL
?" : O$
191 IF O$="Y" THEN GO TO 200
192 RUN
200 FOR t=0 TO 126
210 LET B=L(T+1): LET A=T
220 FOR G=1 TO 20
230 LET A=A+6.35: LET B=B+4.4
240 LET B=B+((H(T+1)-88)-L(T+1
))/20
245 PLOT A,B
250 NEXT G
260 NEXT T
270 INPUT "SOUTH TO EAST ASWELL
?" : O$
280 IF O$="Y" THEN LET O=1: GO
TO 146
290 RUN
1000 LET B=43
1010 LET A=1
1015 LET D=1
1020 LET L(INT D)=B
1021 PLOT D,B
1030 LET B=B+(SIN A)
1040 LET A=A+.04: LET D=D+.5
1045 IF D=127 THEN GO TO 1060
1050 GO TO 1020
1060 GO TO 130

```

**T**IMOTHY CLOSE of Shepperton, Middlesex wrote **Contour** to draw three-dimensional surfaces on the Spectrum. When RUN the program will print a cross on the screen. Use keys five, six, seven, eight and nine to draw a contour line in the bottom left-hand square. Nine will draw a horizontal line; the other keys move the cursor from left to right at varying angles.

When the bottom left-hand square has been crossed, the line will move to the top right-hand square and continue. The computer will then ask "1 South to north 2 West to east?" Inputting 2 will produce 20 intermediate contours representing a gradual change from first to second contour.

Inputting 1 will produce the question Radians, requiring you to input the curvature on your south-north lines. Straight would be 0, maximum curvature around 2.5. No matter what option you select, you will be given the option of including the other.



# SPINVAD

```

100 REM ==ONE-TIME==
120 LET game=0: LET hs=0
140 DIM a$(5): DIM a(65): DIM b
(65): DIM s(65): DIM c(65)
160 RANDOMIZE
500 REM ==GRAPHICS==
510 DATA "A",16,66,72,1,20,68,8
520 DATA "B",0,24,24,24,24,60,2
530 DATA "C",0,129,66,60,36,24,
36,0
540 DATA "D",0,36,60,36,126,126
,90,0
550 DATA "E",15,31,63,127,255,2
55,255,255
560 DATA "F",240,248,252,254,25
5,255,255,255
570 DATA "G",0,24,24,24,0,0,0,0
600 FOR n=1 TO 7: READ g$: FOR
i=0 TO 7: READ a: POKE USR g$+i,
a: NEXT i: NEXT n
620 LET a$(2)="M": LET a$(5)="X"
700 REM ==SET-UP==
720 LET sc=0
740 LET r=.9: LET y=4
760 LET s=0: LET g=15
800 BORDER 0: CLS
820 PRINT AT 16,0;"
840 PRINT AT 17,0;"
860 PRINT AT 18,0;"
880 PRINT AT 20,9;"
900 PRINT AT 0,2;"Score:";sc
910 PRINT AT 0,23; INK 1;"X"; I
NK 0;"=5 "; INK 2;"M"; INK 0;"=
2"
920 IF game<>0 THEN GO TO 3000
980 REM ==INTRO==
1020 FOR j=1 TO 3: FOR n=30 TO 6
0: BEEP .01,n: NEXT n: NEXT j
1020 PRINT AT 10,3; FLASH 1;"Do
you want instructions?"
1040 IF INKEY$="" THEN GO TO 104
2
1060 PRINT AT 10,0;"
1080 IF INKEY$="y" OR INKEY$="Y"
THEN GO TO 1140
1100 IF INKEY$="n" OR INKEY$="N"
THEN GO TO 3000
1120 GO TO 1020
1160 PRINT AT 4,12; FLASH 1;"INV
ADERS"
1300 PRINT AT 6,0;" The very
simple aim of this"
1320 PRINT " simple game is to
destroy the"
1340 PRINT " invaders that are
landing on"
1360 PRINT " the earth."
1380 PRINT " You control you
r base with"
1400 PRINT " the keys '5' and '
8' and fire"
1420 PRINT " with key '7'."
1440 PRINT " © R
.Luckett."
1460 INPUT " Press ENTER to sta
rt: "; LINE x$
1500 FOR i=4 TO 15
1520 PRINT AT i,0;"
1540 NEXT i
3000 REM ==INVADERS==
3020 FOR i=1 TO 2
3040 FOR j=1 TO 13
3060 LET x=13*(i-1)+j
3080 LET s(x)=5: LET c(x)=1
3100 LET b(x)=2+2*i
3120 LET a(x)=i+j*2
3200 FOR i=1 TO 3
3220 FOR j=1 TO 13

```

```

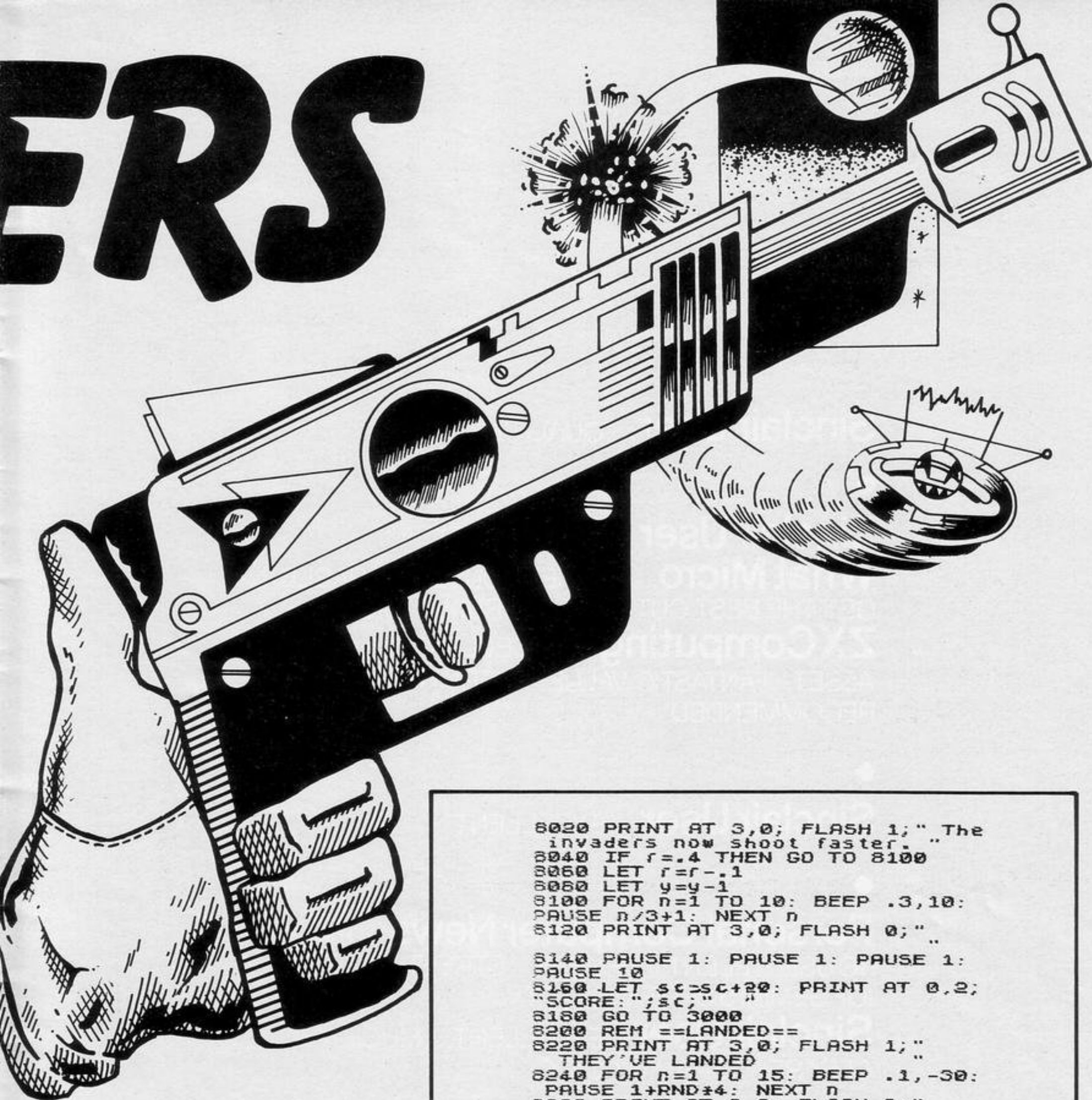
3240 LET x=26+13*(i-1)+j
3260 LET s(x)=2: LET c(x)=2
3280 LET b(x)=6+2*i
3300 LET a(x)=i+j*2
3320 PRINT INK c(x);AT b(x),a(x)
; a$(s(x))
3340 NEXT j
3360 NEXT i
4000 REM ==LOOP==
4020 FOR n=1 TO 65
4060 LET g1=g
4100 IF INKEY$="" THEN GO TO 450
0
4120 IF INKEY$="8" THEN LET g=g+
1: GO TO 4300
4140 IF INKEY$="5" THEN LET g=g-
1: GO TO 4300
3140 PRINT INK c(x);AT b(x),a(x)
; a$(s(x))
3160 NEXT j
3180 NEXT i
4160 IF INKEY$="7" AND INT (n/y)
=n/y THEN GO TO 4200
4180 GO TO 4500
4190 REM ==FIRE==
4200 LET i1=19
4210 FOR i=18 TO 3 STEP -1
4220 IF POINT (g*8+2,(21-i)*8+4)
=1 THEN GO TO 4240
4230 PRINT AT i1,g;" ": PRINT AT
i,g; INK 3;"*": LET i1=i: NEXT
i: GO TO 4260
4240 IF POINT (g*8,(21-i)*8)=1 T
HEN GO TO 4260
4250 IF POINT (g*8,(21-i)*8+6)=1
THEN LET sc=sc+3
4260 LET sc=sc+2: PRINT AT 0,8;s
c
4270 IF sc=208 OR sc=436 OR sc=6
54 OR sc=892 THEN PRINT AT i1,g;
" ": PRINT AT i,g; INK 2;"*": BE
EP .5,-50: PRINT AT i,g;" ": GO
TO 8000
4280 PRINT AT i1,g;" ": PRINT AT
i,g; INK 2;"*": BEEP .5,-50: PR
INT AT i,g;" "
4290 GO TO 4500
4300 REM ==MOVE==
4320 PRINT AT 20,g1;" "
4340 IF g>29 OR g<2 THEN LET g=g
1
4360 PRINT AT 20,g;"1"
4500 REM ==INVADERS==
4520 IF a(n)=0 THEN GO TO 7000
4540 IF POINT (a(n)*8+2,(21-b(n)
)*8+4)=0 THEN LET a(n)=0: GO TO
7000
5440 PRINT AT b(n),a(n);" "
5460 LET a(n)=a(n)+1
5480 IF a(n)=30 THEN LET b(n)=b(
n)+2: LET a(n)=2: IF b(n)=18 THE
N GO TO 8400
5520 PRINT INK c(n);AT b(n),a(n)
; a$(s(n))
6000 REM ==ATTACK==
6020 IF RND<r THEN GO TO 7000
6040 LET h=INT (RND*65)+1
6100 IF POINT (a(h)*8+2,(21-b(h)
)*8+4)=0 THEN LET h=n
6140 PRINT FLASH 1; INK c(h);AT
b(h),a(h); a$(s(h))
6160 FOR i=16 TO 18
6180 IF POINT (a(h)*8,(21-i)*8)=
1 THEN GO TO 6240
6200 NEXT i
6220 LET i=20
6240 PRINT AT i,a(h); INK 2;"*":
BEEP .1,-30: PRINT AT i,a(h);" "
6260 IF i=20 AND a(h)=g THEN GO
TO 8300
6280 PRINT FLASH 0; INK c(h);AT
b(h),a(h); a$(s(h))
6300 GO TO 7000
7000 NEXT n: GO TO 4000
8000 REM ==WIN==

```





# ERS



**W**E HEREBY inaugurate a new quest for the Sinclair Programmer Our Spacman project is, we think, approaching its triumphant conclusion—we can feel you all closing-in on that elusive muncher—so it is just the time to implant a new ambition in your heads.

Send us an arcade-quality Invaders game. Fast moving, colourful, with all appropriate effects.

R Luckett of Stratford-on-Avon has provided all you need to begin the project. His program gives you the laser base, the rows of descending aliens and the disintegrating bunkers to lurk behind. It is a little slow, however, and the power beams from the aliens are invis-

ble. Race right with 8, lurch left with the 5, and 7 shoots your blaster beam. (48K Spectrum). Graphics notes:  
620—Graphic D, graphic C

820—Graphic E, inverse space, graphic F.  
880—Graphic B  
4230—Graphic G.

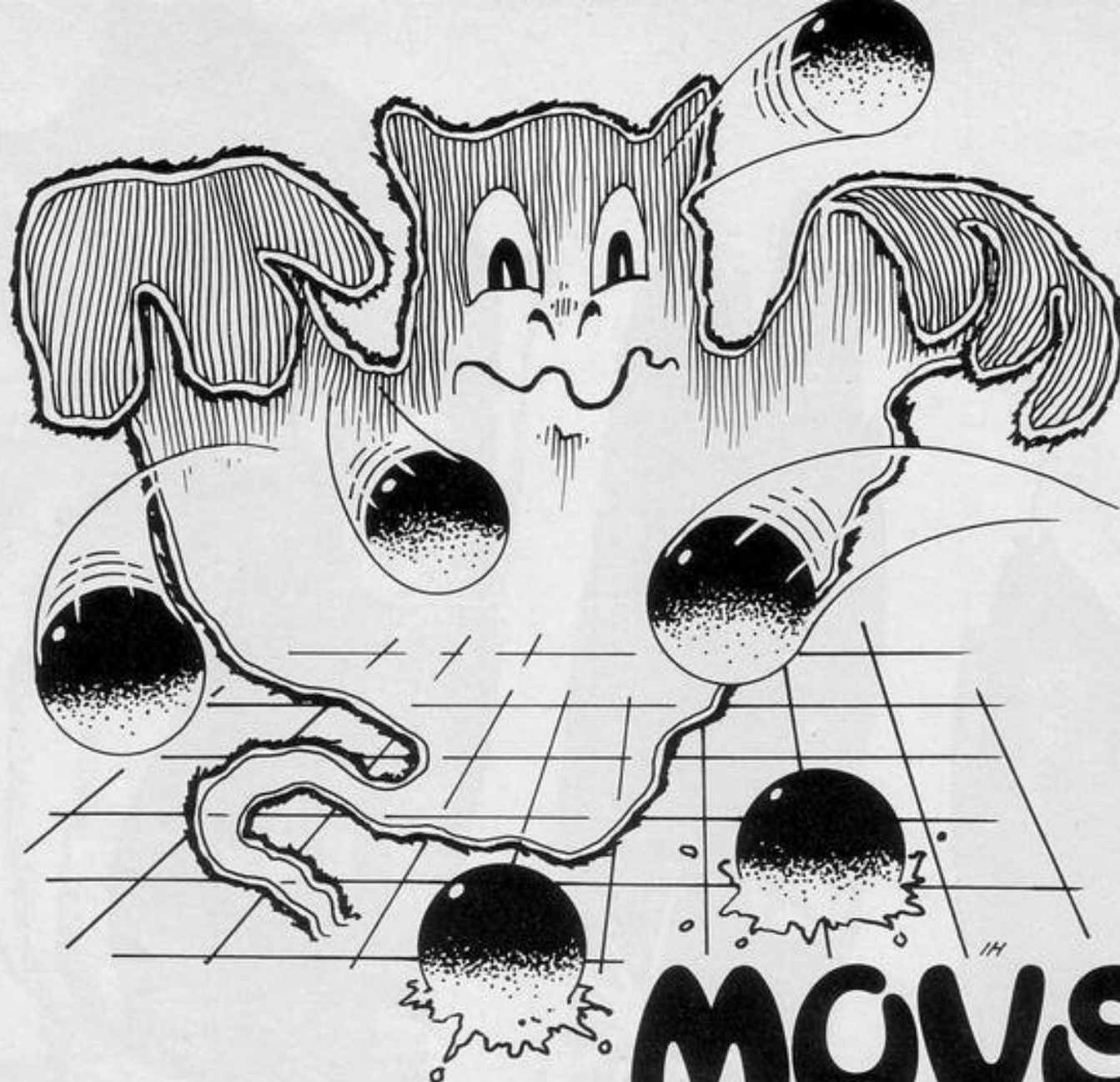
```

6020 PRINT AT 3,0; FLASH 1;" The
    invaders now shoot faster. "
6040 IF r=.4 THEN GO TO 8100
6060 LET r=r-.1
6080 LET y=y-1
6100 FOR n=1 TO 10: BEEP .3,10:
    PAUSE n/3+1: NEXT n
6120 PRINT AT 3,0; FLASH 0;"

6140 PAUSE 1: PAUSE 1: PAUSE 1:
    PAUSE 10
6160 LET sc=sc+20: PRINT AT 0,2;
    "SCORE:";sc;"
6180 GO TO 3000
6200 REM ==LANDED==
6220 PRINT AT 3,0; FLASH 1;"
    THEY'VE LANDED
6240 FOR n=1 TO 15: BEEP .1,-30:
    PAUSE 1+RND*4: NEXT n
6260 PRINT AT 3,0; FLASH 0;"

6300 REM ==LOSE==
6320 FOR n=1 TO 10: BEEP RND,60:
    PAUSE (RND*3)+1: NEXT n
6340 BORDER 7: CLS
6360 PRINT AT 6,0;"                To
    o Bad!
6380 PRINT "                Better luck nex
    t time!"
6400 PRINT "                Score:";
    sc;"
6420 IF sc>hs THEN LET hs=sc
6440 PRINT "                High score:";
    hs;"
6500 PRINT AT 18,0; FLASH 1;"
    Do you want another game? "
6540 IF INKEY$="" THEN GO TO 8540
6560 IF INKEY$="y" OR INKEY$="Y"
    THEN LET game=1: GO TO 700
6580 IF INKEY$="n" OR INKEY$="N"
    THEN CLS : GO TO 9900
6600 GO TO 8540
    
```





# MOVE IT!

**M**OVE IT is another round in the continuing battle between you and the ghosts which haunt your Spectrum. The ghost chases you round the screen and you score by tricking it into crashing into the blobs. If the ghost catches you it will eat you and if you run into a blob you will be SPLATTED.

The program was written by R Wileman of Emsworth, Hampshire.

```

1 PAPER 7: CLS : GO SUB 6000:
GO SUB 5000
2 CLS : GO TO 50
5 LET s=0: LET k=15: LET l=15
: LET j=1: LET h=20
10 FOR a=0 TO 31: PRINT AT 0,a
: "*" : PRINT AT 21,a: "*" : NEXT a
20 FOR a=0 TO 21: PRINT AT a,0
: "*" : PRINT AT a,31: "*" : NEXT a
30 PRINT AT 1,1: "*"
40 GO TO 90
50 FOR n=0 TO 9-1
55 LET w=INT (RND*19)+1: LET e
=INT (RND*29)+1
60 PRINT INK 1: PAPER 6: AT w,e
: "AA"
65 PRINT INK 1: PAPER 6: AT w+1
,e: "AA"
70 NEXT n
80 GO TO 5
90 PRINT AT k,1: "C"
100 PRINT AT INT J,INT h: " " : L
ET J=J+.8*(J<k)-.5*(J>k): LET h=
h+.8*(h<1)-.5*(h>1): IF ATTR (IN
T J,INT h)=49 THEN LET s=s+1
101 IF SCREEN# (INT J,INT h)="/"
" THEN GO SUB 1200
105 PRINT INK 2: PAPER 7: AT INT
J,INT h: "B"
110 IF ATTR (k,1)=58 THEN GO TO
2000
145 PRINT AT k,1: " "
150 LET l=l-(PEEK 23560=119 OR
PEEK 23560=87)+(PEEK 23560=101 O
R PEEK 23560=69)
160 LET k=k+(PEEK 23560=107 OR
PEEK 23560=75)-(PEEK 23560=111 O

```

```

R PEEK 23560=79)
165 IF INKEY#="h" OR INKEY#="H"
THEN PAUSE 0
170 IF SCREEN# (k,1)="/" THEN G
O SUB 1000
180 IF ATTR (k,1)=49 THEN GO TO
1500
185 PRINT AT 0,0:s
190 IF s=9*4/2 THEN GO TO 3000
200 GO TO 90
1000 IF k=0 THEN LET k=1
1010 IF k=21 THEN LET k=20
1020 IF l=0 THEN LET l=1
1030 IF l=31 THEN LET l=30
1050 RETURN
1200 IF INT J=0 OR INT J<0 THEN
LET J=1
1210 IF INT J=21 THEN LET J=0
1220 IF INT h=0 OR INT h<0 THEN
LET h=1
1230 IF INT h=31 THEN LET h=30
1240 RETURN
1500 CLS
1505 READ a
1510 BEEP .5,a
1520 DATA 6,9,3,2,5,7,6,5,4,9,1,
0
1540 IF a=0 THEN RESTORE a: GO T
O 1560
1550 GO TO 1505
1560 PRINT : PRINT : PRINT "YOU
CRASHED" WITH A SCORE OF "s
1570 INPUT "Another game ? " : q#
1580 IF q#="y" OR q#="Y" THEN GO
TO 1
1999 STOP
2000 CLS : PRINT " IT GOT
YOU " : PRINT : PRINT " YOUR
SCORE IS "s
2020 INPUT "Another game ? " : q#
2030 IF q#="y" OR q#="Y" THEN GO
TO 1
2500 STOP
3000 FOR n=0 TO 30
3010 FOR z=0 TO 5: BEEP .01,z: N
EXT z
3020 PRINT FLASH 1: AT 18,12: "YOU
WON"
3100 LET a=INT (RND*7)+1
3110 PAPER a
3120 NEXT n
3130 INPUT "Another game ? " : q#

```

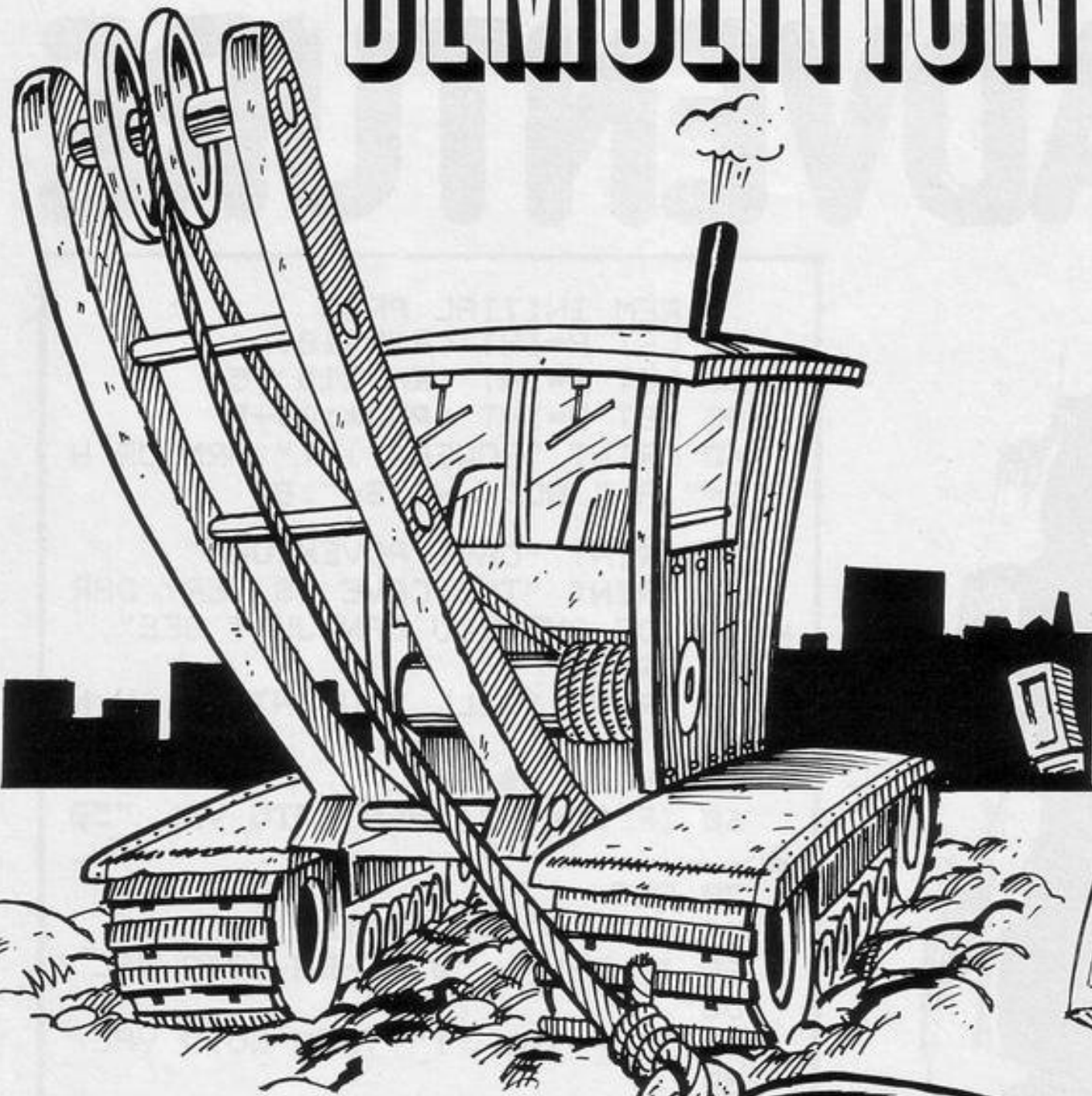
```

3140 IF q#="y" OR q#="Y" THEN GO
TO 1
3150 STOP
4010 PAUSE 100
5000 CLS : PRINT "XXXXXXXXXXXXMO
VE ITXXXXXXXXXXXX"
5010 PRINT : PRINT "In this game
you have to make the ghost ea
t the blobs." "But if the ghost
catches you it will eat you and
if you run into the blobs you wil
l be SPLATTED."
5020 PRINT : PRINT "You look lik
e this "C"
5030 PRINT : PRINT "The ghost lo
oks like this " : INK 2: "B"
5040 PRINT : PRINT "The blobs lo
ok like this "AA
5050 PRINT : PRINT "To move use
keys:-"
5055 PRINT : PRINT "w to move le
ft"
5060 PRINT "e to move right"
5065 PRINT "o to move up"
5067 PRINT "k to move down"
5068 PRINT "h to hold (any key t
o cont)"
5070 INPUT "How many blobs ? " : q
6000 POKE USR "a",BIN 11111111
6010 POKE USR "a"+1,BIN 10000001
6020 POKE USR "a"+2,BIN 11111111
6030 POKE USR "a"+3,BIN 10000001
6040 POKE USR "a"+4,BIN 11111111
6050 POKE USR "a"+5,BIN 10000001
6060 POKE USR "a"+6,BIN 11111111
6080 POKE USR "b", BIN
6090 POKE USR "b"+1,BIN 01111100
7000 POKE USR "b"+2,BIN 11010110
7010 POKE USR "b"+3,BIN 11111110
7020 POKE USR "b"+4,BIN 11111110
7030 POKE USR "b"+5,BIN 01111100
7040 POKE USR "b"+6,BIN 01010100
7060 POKE USR "c", BIN
7070 POKE USR "c"+1,BIN 00010000
7080 POKE USR "c"+2,BIN 00111100
7090 POKE USR "c"+3,BIN 1010101
8000 POKE USR "c"+4,BIN 10000001
8010 POKE USR "c"+5,BIN 00010000
8020 POKE USR "c"+6,BIN 00010000
8030 POKE USR "c"+7,BIN 01111110
8050 RETURN

```



# DEMOLITION



WE DO NOT understand how this game can be so addictive. The basic concept could scarcely be more simple. It is a Break-out-type game in which you are required to blast away an advancing wall before it crushes you. There are tactics to be employed, like hitting foundation stones and bringing down a series of bricks above them, and attacking the next wall in the series through the gaps in its predecessor; the multi-coloured bricks are very pretty; the finger work could not be easier, but why do we become so wrapped up in the thing? Perhaps we are just claustrophobics.

The game was submitted by D Valentine of Mansfield, Nottinghamshire. (16K Spectrum). Graphics notes:

1110—Graphic A

6010—Graphic B.

```

1 REM SPECTRUM DEMOLITION
2 REM BY D.Valentine 22/1/83
10 BEEP 1,10
100 POKE 23658,0
110 GO SUB 9000
120 PAPER 4: INK 1: FLASH 0: BR
IGHT 0: OVER 0: INVERSE 0: BORDE
R 4: CLS
200 PRINT #1;AT 0,0; FLASH 1;TA
B 8;"PRESS ANY KEY"
210 PAUSE 0
220 LET S=0: LET B=0: LET C=-1:
LET A=48
300 GO TO 8000
500 INK 0: PAPER 6: BORDER 1: C
LS
510 GO SUB 7000
520 PRINT #1;AT 0,0;"SCORE:0","
HIGH SCORE:";S(d*2-1)
1000 LET R=INT (RND*10+1)
1005 LET DX=(R*5)-(R<=5): LET X=
31+(R<=5)
1010 LET X1=X
1020 LET K$=INKEY$
1030 LET X=X+DX
1040 IF X>31 OR X<0 THEN LET DX=
- DX: GO TO 1030
1050 PRINT AT 0,X;"*";AT 0,X1;"
"
1060 IF K$<>" " THEN LET B=B+1: G
O TO 1100
1070 GO TO 1010
1100 IF B<D THEN GO TO 2000
1105 LET B=0: LET C=C+1: IF C=1
3 THEN LET C=0
1110 IF C=5 THEN LET W$="*****
*****"
1115 IF C=0 THEN LET W$=CHR$ 17+
CHR$ 6+CHR$ 16+CHR$ 0+CHR$ 5+CHR
$ 6
1120 POKE 23692,255: PRINT #1;AT
0,0;"#2,AT 21,0" PAPER 0; INK 1
NT (RND*5+1);W$;#1;AT 0,0;"SCORE
:";S;"HIGH SCORE:";S(d*2-1)
1125 PRINT AT 0,X;"*"
1130 LET T=USR USR "C": IF T<>65
535 THEN GO TO 6000
2000 BEEP .03,-12
2005 LET Y=0
2010 LET Y1=Y
2020 LET Y=Y+1
2025 IF Y>21 THEN PRINT AT Y1,X;
" " : GO TO 1000
2030 IF ATTR (Y,X) <> 0 THEN GO TO
3000
2040 PRINT AT Y,X;"*";AT Y1,X;"
"
2050 GO TO 2010
3000 PRINT AT Y1,X;" "
3010 LET LX=X: LET RX=X
3020 LET L=ATTR (Y,LX)
3025 LET R=ATTR (Y,RX)
3030 IF L=S AND R=S THEN GO TO 1
200
3035 IF L<>S AND L<>RX THEN LET
S=S+S: BEEP .01,10+X-LX
3036 IF R<>S THEN LET S=S+S: BEE
P .01,10+RX-X
3037 PRINT #1;AT 0,6;S
3040 PRINT AT Y,LX;"*";AT Y,RX;"
"
3050 LET LX=LX-LX*0: LET RX=RX
+RX*31: LET Y=Y-1
3060 IF Y<0 THEN GO TO 1000
3070 GO TO 3020
5000 FOR I=31 TO 33-1 STEP -1

```

```

5010 PRINT INK 2; PAPER 5; BRIGH
T 1;AT 0,1; OVER 0;"€"
5020 BEEP .05,31-1
5030 NEXT I
5040 PRINT AT 0,1; BRIGHT 1; QUE
R 1: INK 8; PAPER 6; FLASH 1;" "
5500 LET X=4*2: LET Y=X-1
5505 IF S<S(X) THEN GO TO 6540
5508 POKE 23658,0
5510 INPUT PAPER 2; INK 9;AT 0,0
;"YOU MADE IT TO THE SCORE TABLE
" : ENTER NAME (10 MAX) " : AT 1,20
: LINE W$
5515 POKE 23658,0
5520 IF S>S(Y) THEN LET S(X)=S
(Y): LET S(X)=S(Y): LET S(Y)=W
$: LET S(Y)=S: GO TO 6540
5530 IF S>S(X) THEN LET S(X)=W
$: LET S(X)=S
5540 CLS
5550 PRINT FLASH 1;AT 2,10;"HIGH
SCORES:"
5560 PRINT AT 4,0;
6570 FOR I=1 TO 5: PRINT TAB 5;"
LEVEL " ; I : NEXT I
5580 PRINT AT 3,0
5590 FOR I=1 TO 10 STEP 2: PRINT
OVER 1;TAB 14; BRIGHT 1;S(I);T
AB 25;S(I) : NEXT I
5595 PRINT AT 4,0
5600 FOR I=2 TO 10 STEP 2: PRINT
OVER 1;TAB 14;S(I);TAB 25;S(I)
: NEXT I
5710 GO TO 200
7000 LET W$="*****
*****"
7010 FOR I=17 TO 21
7020 PRINT PAPER 0; INK INT (RND
*5+1);AT 1,0;W$

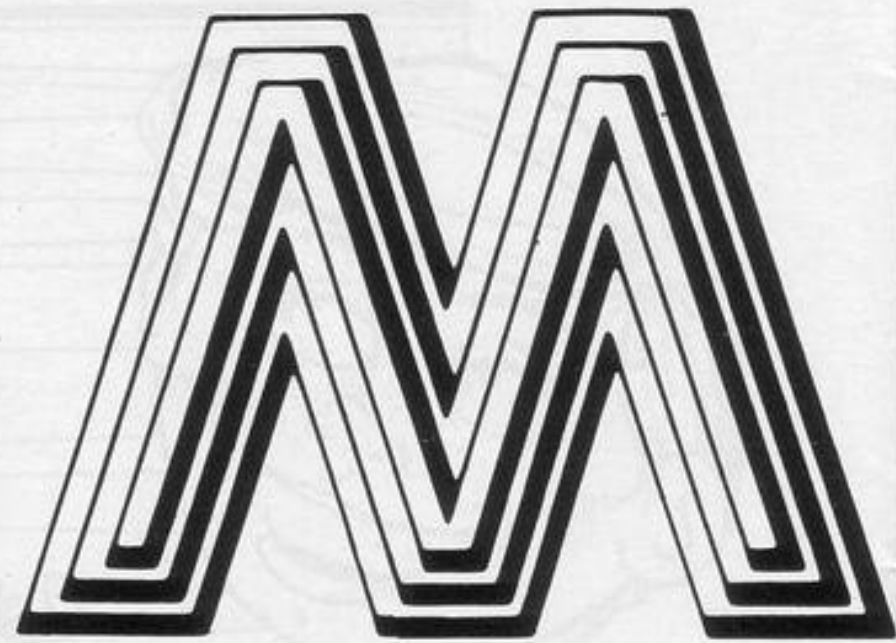
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```

7030 NEXT I
7040 RETURN
8000 PAPER 5: INK 0: BORDER 3: C
LS
8010 PRINT AT 1,6; FLASH 1; BRIG
HT 1; INK 2; PAPER 6;"SPECTRUM D
EMOLITION"
8020 PRINT "The aim of this
game is to DEMOLISH the ad
vancing wall before it re
aches you."
8030 PRINT "To launch th
e ball-"
8040 PRINT "press any key eg
" : SPACE
8050 PRINT #1;AT 0,0; INK 0; PAP
ER 4;"SELECT DIFFICULTY ? (1-5):
1-HARD"
8055 LET W$=INKEY$
8060 IF W$<"1" OR W$>"5" THEN GO
TO 8050
8070 LET D=VAL W$(1)
8080 PRINT #1;AT 0,0; INK 1; PAP
ER 6;"PRESS ANY KEY TO START G
AME " : PAUSE 1: PAUSE 0
8090 GO TO 500
9000 RESTORE 9200: FOR I=USR "a"
TO USR "c"+17: READ X: POKE I,X
: NEXT I
9010 DIM S$(10,10): DIM S(10)
9020 FOR I=1 TO 10: LET S$(I)=".
.....": NEXT I
9030 RETURN
9200 DATA 0,126,126,126,126,126,
126,6
9210 DATA 6,24,96,255,255,96,24,
126,200,35,13,32,-6,1,255,255,2
51

```





**M**ATRIX is one of those rare but excellent routines in which the computer answers back. It is a game of strategy requiring you to move a flashing cursor across a matrix of numbers, collecting the highest available values by hitting the 0 key.

The restrictions are that you can move only horizontally and that you must avoid giving the computer, which moves vertically, any access to the high numbers. The winner is the player with the highest score when more moves are impossible. Instructions and prompts are contained within the game and a running score is kept.

The computer plays very well, obviously in its element with the requisite number-crunching, and in our tests it managed to win more often than not.

An interesting and original listing from T J Marrow of Wirral, Merseyside.

In our listing, lower-case letters signify inverse video except when inside brackets, when they are graphic instructions. (16K ZX-81)

```

1 PRINT AT 10,10;"(inverse MA
TRIX)"
7 PRINT AT 17,8;"BY JAMES MAR
ROW"
8 PRINT AT 20,4;"DO YOU WANT
INSTRUCTIONS?"
9 INPUT U$
10 IF U$(1)="Y" THEN GOTO 2000
11 CLS
12 PRINT AT 10,5;"WHO AM I PLA
YING WITH?"
13 PRINT AT 13,7;"(INPUT YOUR
NAME)"
14 INPUT N$
15 CLS
16 IF LEN N$<9 THEN GOTO 19
17 PRINT AT 13,3;"YOUR NAME IS
TOO LONG."
18 GOTO 14
19 PRINT AT 10,2;"EXCUSE ME WH
ILE I SET UP",TAB 6;"THE BOARD,
",N$
20 REM shuffle board pieces
21 LET LP=0
  
```



# ATRIX

```

22 LET MO=2
25 DIM B$(8,16)
30 LET A$="*151009090908080807
07070606060505050404040303030202
020101010000000000-1-1-1-2-2-2-3
-3-3-4-4-4-5-5-5-6-6-6-7-7-7-8-8
-8-8-9-9-9-900  "
40 FOR N=1 TO 8
50 FOR M=1 TO 8
60 LET A=INT ((RND*(LEN A$-1)
/2))+1)*2
70 LET B$(N,M*2-1 TO M*2)=A$(A
TO A+1)
80 IF A$(A TO A+1)="  " THEN G
OSUB 1500
90 LET A$=A$(1 TO A-1)+A$(A+2
TO LEN A$)
100 NEXT M
110 NEXT N
120 REM  score variables
130 LET S=0
140 LET T=0
160 GOSUB 700
170 REM  Players move
175 GOSUB 3000
180 PRINT AT 2*Y,1+(X-1)*3;"(tw
o inverse 'ASTERISKs)"
190 PRINT AT 2*Y,1+(X-1)*3;B$(Y
,2*X-1 TO 2*X)
200 IF INKEY$="" THEN GOTO 180
210 LET A$=INKEY$
213 IF A$="U" THEN GOTO 920
215 IF A$<>"8" AND A$<>"5" AND
A$<>"0" THEN GOTO 180
219 IF A$="0" AND B$(Y,2*X-1 TO
2*X)="  " THEN GOTO 180
220 IF A$="0" THEN GOTO 270
230 LET X=X+(A$="8")-(A$="5")
240 IF X>8 THEN LET X=1
250 IF X<1 THEN LET X=8
260 IF B$(Y,2*X-1)="  " THEN GOT
O 230
265 GOTO 180
270 LET LP=VAL B$(Y,2*X-1 TO 2*
X)
275 PRINT AT 2*Y,1+(X-1)*3;"  "
280 LET S=S+LP
290 LET MO=1
295 LET B$(Y,2*X-1 TO 2*X)="  "

```

```

297 GOSUB 765
300 REM  computers move
301 GOSUB 4000
305 DIM R(8)
310 FOR N=1 TO 8
315 LET V=-100
325 IF N=Y THEN GOTO 430
330 IF B$(N,2*X-1 TO 2*X)<>"  "
THEN GOTO 360
340 LET W=-100
345 IF N=Y THEN GOTO 420
350 GOTO 370
360 LET W=VAL B$(N,2*X-1 TO 2*X
)
370 FOR M=1 TO 8
370 FOR M=1 TO 8
380 IF M=X THEN GOTO 410
390 IF B$(N,M*2-1 TO M*2)="  "
THEN GOTO 410
395 IF VAL B$(N,M*2-1 TO M*2)<V
THEN GOTO 410
400 LET V=VAL B$(N,M*2-1 TO M*2
)
410 NEXT M
420 LET R(N)=W-V
430 NEXT N
440 LET V=-100
450 FOR N=1 TO 8
460 IF B$(N,2*X-1 TO 2*X)="  "
THEN GOTO 489
470 IF R(N)<V THEN GOTO 489
475 LET V=R(N)
480 LET Y=N
489 NEXT N
490 LET LP=VAL B$(Y,2*X-1 TO 2*
X)
500 LET T=T+LP
505 PRINT AT Y*2,1+(X-1)*3;"  "
510 LET B$(Y,2*X-1 TO 2*X)="  "
520 LET MO=2
530 GOSUB 765
540 GOTO 170
699 REM  draw board
700 CLS
701 PRINT AT 0,0;"(nine inverse
SPACEs/inverse MATRIX;ten inver
se SPACEs)"
706 FOR N=1 TO 8
710 PRINT AT (2*N)-1,0;"(twenty

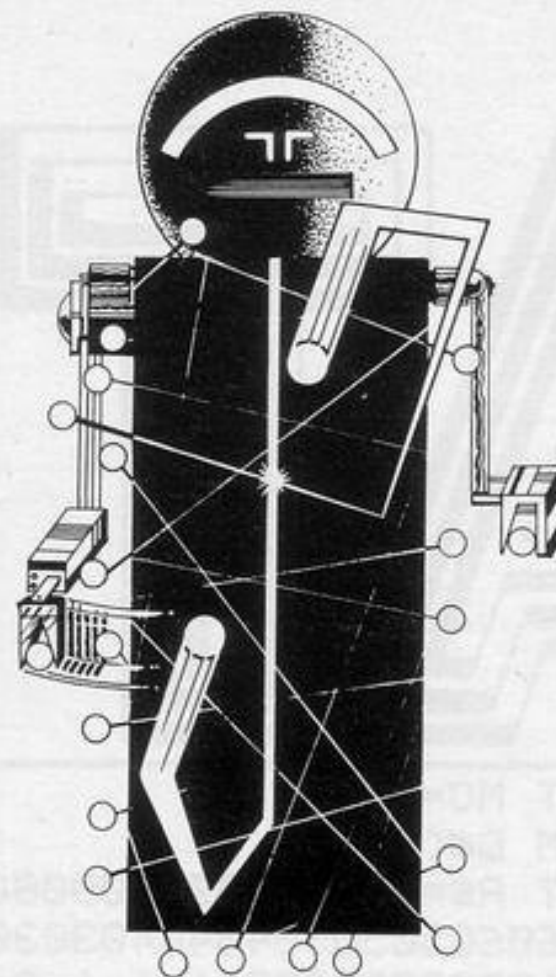
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```

five inverse SPACES)"
720 FOR M=1 TO 8
730 PRINT AT 2*N,(M-1)*3;"(inverse SPACE)" ; B$(N,2*M-1 TO 2*M)
740 NEXT M
745 PRINT AT 2*N,24;"(inverse SPACE)"
750 NEXT N
760 PRINT AT 17,0;"(twenty five inverse SPACES)"
770 PRINT AT 19,2;N$;" : ";S;"
"
780 PRINT AT 21,2;"ZX81 : ";T;"
"
790 PRINT AT 19,15;"LAST PIECE : ";LP;" "
795 PRINT AT 21,14;"
"
800 IF MO=1 THEN PRINT AT 21,14;"MY TURN"
810 IF MO=2 THEN PRINT AT 21,14;"YOUR TURN, ";N$
820 RETURN
910 REM game over
920 CLS
925 PRINT AT 4,8;"(thirteen inverse ASTERISKs)"
930 PRINT AT 5,8;"(inverse ASTERISK SPACE GAME OVER SPACE ASTERISK)"
935 PRINT AT 6,8;"(thirteen inverse ASTERISKs)"
940 PRINT AT 9,7;"MY SCORE IS ";T
950 PRINT AT 11,2;"YOUR SCORE, ";N$;" IS ";S
955 PRINT AT 13,7;"PRESS ANY KEY"
960 IF S<>T THEN GOTO 1000
970 PRINT AT 17,6;"(inverse DRAW)"
980 IF INKEY$="" THEN GOTO 990
995 GOTO 1200
1000 IF S>T THEN GOTO 1050
1010 PRINT AT 17,9;"(inverse I WON)"
1020 IF INKEY$="" THEN GOTO 1020
1030 GOTO 1200
1055 PRINT AT 17,6;"(inverse YOU WON)"
1070 IF INKEY$="" THEN GOTO 1070
1200 CLS
1210 PRINT AT 10,3;"DO YOU WANT ANOTHER GAME?"
1220 INPUT U$
1230 CLS
1240 IF U$(1)="Y" THEN RUN
1250 PRINT AT 10,11;"THANK YOU"
1260 STOP
1500 LET Y=N
1510 LET X=M
1520 RETURN
2000 CLS
2001 PRINT AT 1,12;"(inverse MATRIX)";TAB 11;"-----"

```



```

2005 PRINT AT 4,1;"YOUR AIM IS TO GAIN MORE POINTS"
2010 PRINT "THAN THE COMPUTER. WHEN IT IS"
2015 PRINT AT 6,0;"YOUR TURN, YOU MOVE THE ""(two inverse ASTERISKs)"" WITH"
2020 PRINT "THE ""8"" AND ""5"" KEYS UNTIL IT IS"
2025 PRINT "OVER THE PIECE YOU WANT, THEN"
2030 PRINT AT 9,0;"YOU PRESS ""0"" TO TAKE IT."
2035 PRINT "PRESS ""U"" TO STOP THE GAME."
2040 PRINT AT 12,1;"THE COMPUTER MOVES VERTICALLY,"
2050 PRINT " AND YOU MOVE HORIZONTALLY."
2055 PRINT AT 18,5;"WHO AM I PLAYING WITH?"
2060 PRINT AT 20,7;"(INPUT YOUR NAME)"
2070 INPUT N$
2075 CLS
2080 IF LEN N$<9 THEN GOTO 19
2090 PRINT AT 13,7;"YOUR NAME IS TOO LONG"
2100 GOTO 2070
2999 REM is game over!
3000 IF B$(Y)="(sixteen SPACES)" THEN GOTO 920
3010 RETURN
4000 LET C$=""
4005 FOR N=1 TO 8
4010 LET C$=C$+B$(N,X*2-1 TO X*2)
4020 NEXT N
4030 IF C$="(sixteen SPACES)" THEN GOTO 920
4040 RETURN
5000 REM MATRIX
5010 SAVE "MATRIX"
5020 RUN

```



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